

FOR USERS OF **Windows® CE** Windows CE 2.0: *The Next Generation!*

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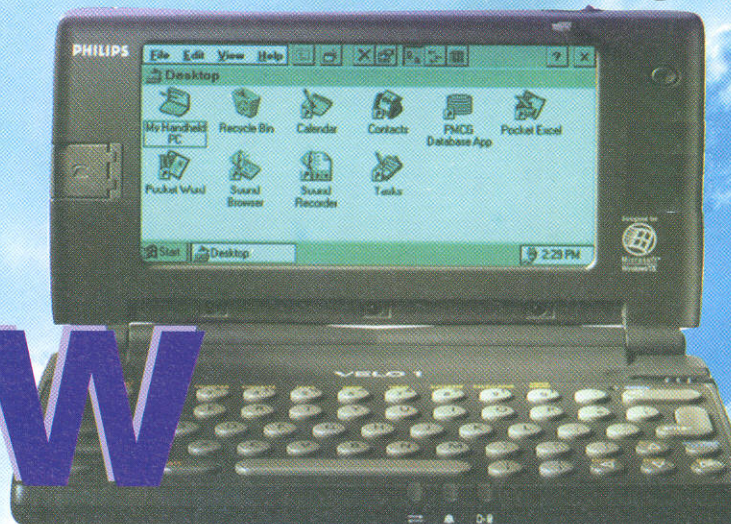
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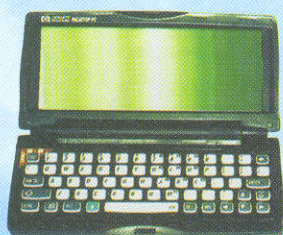
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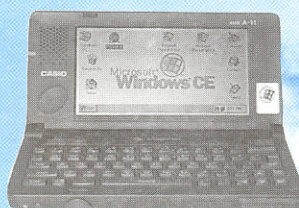
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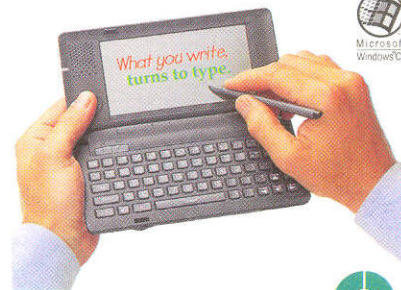


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From The Publisher

Hal Goldstein



January/February 1998

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Those of us in the computer field mark the start of the year by Fall COMDEX. It is the place to see the latest high tech stuff and find out where the industry is headed and at the same time, to finally meet folks previously only known by email addresses.

COMDEX week is both heaven and hell, the best and the worst of times for all those associated with high technology. COMDEX is a city within a city made up of almost a quarter of a million forward-looking, curious, deal-making souls who brave hour-long taxi/bus lines, jacked-up hotel prices, and impossible traffic. These folks face booth after booth, meeting after meeting, party after party. Las Vegas neon lights, blackjack tables and noisy slot machines, and entertainment extravaganzas serve as a backdrop making COMDEX seem almost other-worldly. Like Brigadoon, as if through some magic, COMDEX "city" emerges just one week a year.

Once again this year handheld computers had a strong presence.

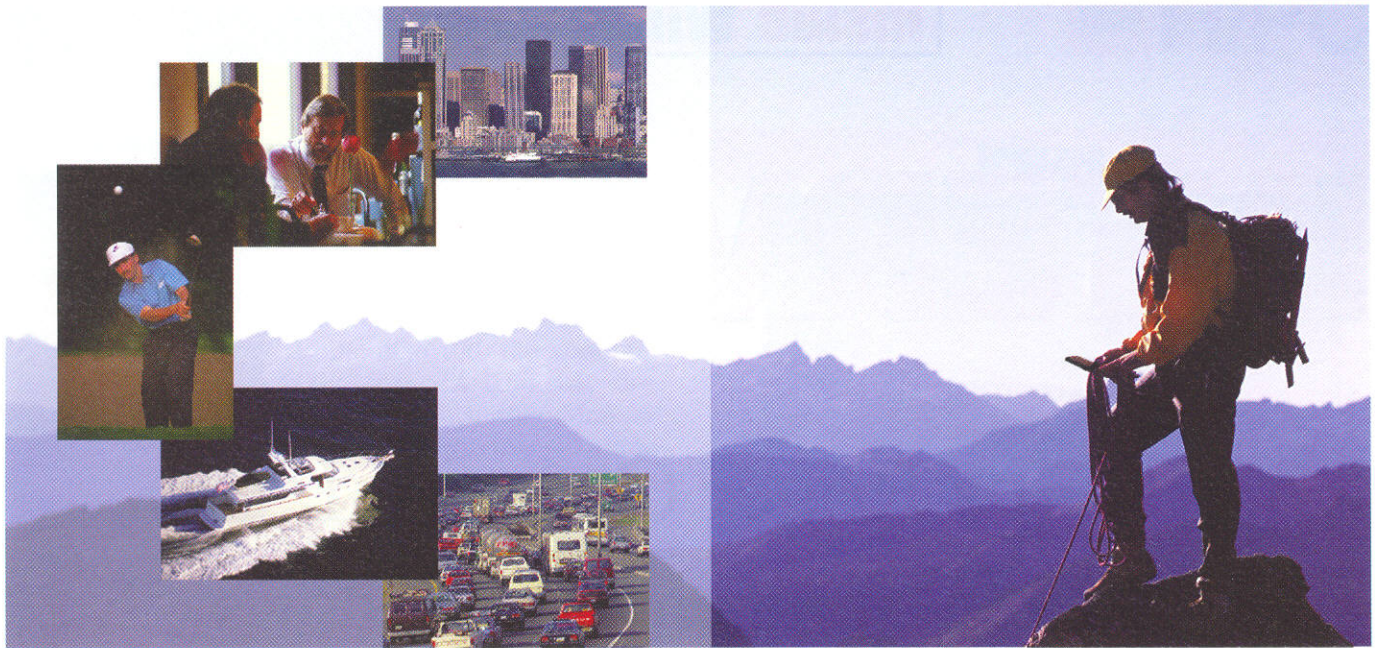
Managing Editor Richard Hall will have an in depth COMDEX report next issue. From COMDEX Rich tells me he saw varieties of new and upcoming Windows CE handhelds. They are "larger, smaller, and faster," "more readable, black and white, and full color," "pen input-only, touch type-able, and voice input." It will be an interesting year.

In the meantime welcome to this first regular issue of Handheld PC Magazine. The issue is jammed with quick tips and in-depth discussions on how to make the best of your Handheld PC. There are lots of highlights. Find out how an H/PC netted a user \$150,000. Read classic literature on your H/PC. Connect with a Mac. Read the comments of a Windows CE 2.0 engineer. Compare calculator options. Find out about the latest third party products, freeware/shareware, and web sites. Learn about Windows CE in Japan. Check out wireless solutions.

Once again we welcome your positive and constructive feedback. We also appreciate tips and profiles you want to share with fellow-users. Our general contact is at editor@thaddeus.com. I am hal_goldstein@thaddeus.com, Rich is rich_hall@thaddeus.com.

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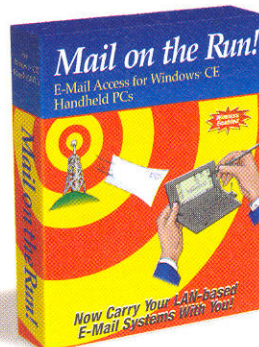
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Calendaring and Scheduling

The InSync! product provides users with the ability to remotely synchronize Calendar, Tasks and Contacts databases on their H/PCs with group scheduling and calendaring data stored in Lotus Notes. Support for Microsoft Schedule+/Outlook and Lotus Organizer® will be available soon.



Data Base

The Corporate Connection product contains Open Data Base Connectivity (ODBC) APIs for creating Windows CE applications for database access. With it, you can remotely retrieve and update corporate information.

Multiple Platforms

The Mail on the Run! family of products is supported on all versions of the Windows CE operating system. Mail on the Run! is also available for Windows 95, and both the Mail on the Run! and Corporate Connection products are available for Apple® Newton MessagePads..

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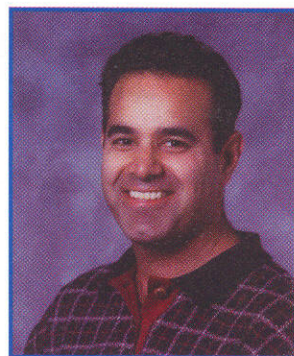
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INTERVIEW



Microsoft's Roger Gulrajani *on the Development of Windows CE 2.0*

Q: *What were the major changes requested by users of Windows CE 1.0?*

I've answered these questions from the perspective of the customers and developers of the Handheld PC, which is powered by Windows CE. However, Windows CE 2.0 is a robust operating system, designed for many different devices in many different categories. The Handheld PC is just one of the device categories.

Based on customer feedback, Microsoft has worked hard to incorporate the following new functionality:

Improved ease of use:

- Support for color and improved gray scale displays.
- Taskbar & tool bar customization capabilities.
- A cascading menu off of the Start menu.
- Support for scaleable TrueType™ fonts.
- Integrated web and file system views in Pocket Internet Explorer.

Improved connectivity:

- Support for standard Ethernet LAN connections.
- Improvements in local and remote connectivity, adding PPP dial-in through network RAS servers or directly to PCs as well as improvements in serial or infrared connectivity.
- Support for secure connections through NTLM challenge/response authentication and SSL 2 & 3 protocols.
- Direct printing from the H/PC via serial or infrared connections.

Improved synchronization with the new ActiveSync™ technology:

- Email and file synchronization in addition to PIM data synchronization between the H/PC and PC.

- Synchronization on connect and continuous synchronization.
- The ability to partner an H/PC with two PCs, or a PC with any number of H/PCs.

Email attachments:

- Attach any file to an email message, and it will be delivered to the H/PC converted to the appropriate format for a Windows CE 2.0 application, or in native format directly readable on the H/PC.
- Group scheduling requests (that are processed as attachments) can be accepted by, or created on the H/PC.

New and enhanced applications:

- Pocket PowerPoint — author a presentation on the desktop and deliver it using the H/PC on the H/PC's screen or on external 640x480 VGA resolution screens (projectors, etc.) in 256 colors using a third-party card. (Some of the new H/PCs will provide built-in VGA support. Also, an H/PC-to-NTSC TV signal card is under development by a third-party vendor.)
- Pocket Word — spell check documents. Drag your custom spelling dictionary to the H/PC to use the same words you've added on your PC.

About the Interviewee

Roger Gulrajani is mobile electronics group product manager for Microsoft's Consumer Appliance Group, and is responsible for marketing PC Companion devices powered by the Windows CE operating system. Prior to joining Microsoft, Gulrajani was VP of Marketing for MediaLink Technologies. Prior to that he was VP of Marketing of Numera Software. Gulrajani started his career at Aldus Corporation as director of Sales and Marketing.

- Pocket Excel — split screen, freeze pane, list management (sorting/-filtering) and database functions.
- Pocket Excel and Word — Document zoom, full screen view, richer formatting, templates and file-level passwords are now supported.

Q: *What are the most important improvements in this release from the perspective of a developer.*

Windows CE is an operating system (OS) for many applications, not just for the Handheld PC. Windows CE 2.0 offers the embedded OEM developer a small, flexible, Win32-based OS which can be configured for many different devices and yet still have the support of the most popular third-party development tools.

Windows CE systems can be built from the kernel only or on up

to devices with full kernel, USER, GDI, communications, and shell. Windows CE 2.0 supports printing, color display, NDIS and Ethernet, ActiveX controls, Visual Basic, and JavaVM.

The goal of Windows CE 2.0 was to develop a small, flexible, Win32 based OS which can be configured into many different devices and yet still have the support of the most popular development tools. Another goal is to leverage on the widespread Win32 programming expertise, and large amounts of Win32 source code. In addition to the new features, the main difference is that the OS is more configurable, making it easier for a hardware vendor to choose just the portions of the OS required for a particular device. All of this has been achieved without making the footprint for minimal systems significantly larger.

Q: *Windows CE handhelds are positioned as PC companions. It seems that Windows CE 2.0 has led to the development of H/PCs that have a little more stand-alone capability. Is this an intentional shift in Microsoft's strategy?*

Microsoft believes there is a market for a number of highly portable, highly functional devices that leverage the customer's existing computer infrastructure. The Handheld PC, powered by Windows CE, is one such device. Microsoft believes there are other devices that also meet these criteria. Microsoft has been researching ways to extend the Windows CE platform. There are a number of innovative products that this company and its partners are planning on introducing.

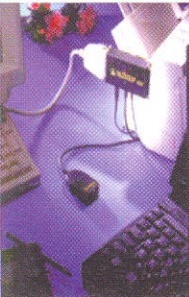
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Q: *Is Windows CE 2.0 backward compatible, i.e., will third-party software written for Windows CE 1.0 work on a CE 2.0 H/PC?*

We did not remove APIs or change APIs in going from version 1 to version 2, or otherwise do things that would break applications. Of course, applications written for Windows CE 1.0 will not exploit the features of Windows CE 2.0.

Whether an application works or not really depends on the specific third-party applications. If its developers followed MS API guidelines, the product will work with Version 2.0. If they did not follow the guidelines, the product may work.

Q: *I have seen that Windows CE 2.0 will support a number of other CPUs, including the PowerPC Chips. Will this help improve connectivity to the Mac? Any Mac connectivity solutions coming that you know of?*

Microsoft has been working closely with the leading CPU manufacturers to ensure broad support for Windows CE 2.0 from the industry's leading 32-bit CPUs. With version 2.0, the Windows CE kernel has been ported to more microprocessors. Windows CE now supports the following CPU families: the AMD ElanSC400; Hitachi SH3; Intel 486DX and Pentium; Motorola PowerPC 821; NEC VR4101, VR4102, and VR4300; Philips PR31500; and Toshiba TX3912. Additional members of these CPU families may also run Windows CE but have not yet been certified in Microsoft test labs.

Future releases of Windows CE will support the DEC SA1100 StrongArm, IBM PPC 403GC(X) and future Hitachi SuperH processors.

I don't know what the connectivity implications are and am not aware of any Macintosh connectivity solutions.

Q: *One of the biggest difficulties with the Windows CE 1.0 release was the way it handled PCMCIA cards. Data files associated with the applications can be backed up to a PC Card, but the application cannot directly access data from a card. As data files grow, the amount of memory available to run applications decreased. Has this been addressed?*

The ATA flash has disk drive software interface not a RAM interface. So accessing files in flash is just like accessing files on disk, i.e., you read them into RAM in pieces through I/O calls, not through memory addresses. The support in Version 2.0 is the same as in Version 1.0. Microsoft will be researching ways to address this question in future releases of Windows CE.

Q: *A lot of new development tools have come out for Windows CE 2.0. How will Microsoft support those tools and the developers that use them?*

The robust development environment for Windows CE has been designed to take advantage of the expertise that thousands of software developers already have with Windows-based programming interfaces and tools, and guarantees the broad availability of after market applications and custom business solutions.

Windows CE 2.0 now supports the following new Win32 services:

- Support for a subset of ActiveX Technologies included for processing COM functions and building flexible software components.
- Support for Visual Basic® programming system run time for Windows CE enables rapid solutions development.
- Support for Java™ virtual machine is based on JDK 1.1.
- The familiar Win32® API programming model and recently expanded choice of development

tools including Microsoft Windows CE Embedded Toolkit for the Visual C++® 5.0, Windows CE Toolkit for Visual C++ 5.0, Windows CE Toolkit for Visual Basic 5.0 and Windows CE Toolkit for Visual J++™ 1.1.

Q: *Will a Pocket version of Access be coming?*

Microsoft has no announced plans for a Pocket version of Microsoft Access.

Q: *What is the future of Windows CE? What improvements and new Pocket applications are Microsoft working on?*

Microsoft is always looking for customers to provide feedback so we can improve our software. After the release of v2.0 for the Handheld PC, we will evaluate and make decisions about what future additions and improvements to the Handheld PC and Windows CE 2.0 are the most appropriate. We have no announcements to make at this time, however.

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Windows CE 2.0: A Hands-On Look

By David Shier

In the Buyer's Guide issue of *Handheld PC Magazine* I provided an overview of Version 2.0 of the Windows CE operating system. Now, about a week before its official release at the COMDEX Show in Las Vegas, I have the opportunity to look at more than just the emulator provided to software developers.

I'm writing this review on a late prototype of Hewlett-Packard's new Windows CE 2.0 handheld, the 360LX. Since I listed many of the changes for Version 2.0 in my last article (*Handheld PC Magazine* Buyer's Guide 98, page 6), I won't repeat it all here. Instead I will simply give you my impressions of using Windows CE 2.0 on this new machine. In working with Windows CE 2.0, I found a number of things that I liked and a few "opportunities for third party developers" (a euphemism for missing features or features that need improvement).

Pocket Outlook

The PIM applications now look much like Outlook on the desktop, and in fact are even called "Pocket Outlook." An enhancement over the "bigger" desktop version is Pocket Outlook's support for "digital ink" in the note fields of Contacts, Tasks and Appointments. This allows you to include maps and other simple drawings in your notes. You can schedule appointments with someone in your Contacts list, although, like the desktop version of Outlook, the Pocket version automatically

assumes that you want to notify the contact of the meeting via email. Personally, I find this assumption inappropriate for the handheld computer. If you use the email feature of the H/PC, then I would recommend you review the Outbox prior to connecting to the network to assure that no messages have been automatically added that you didn't plan on sending.

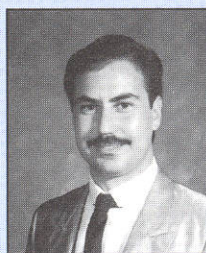
Email attachments

Speaking of email, you can now include file attachments to your email. If you receive a file with an attachment, a utility may be needed to open the file on the H/PC. Remember that the "Pocket" versions of Word and Excel use their own file formats which get converted on the desktop during the copy process, but will not be converted when received as email.

As I noted in my previous article, the Taskbar at the bottom of the screen has been enhanced. It now supports the "auto hide" feature, which provides more real estate on the screen for your applications. A feature that I didn't point out is the

Desktop Icon in the far right corner of the Taskbar. When you select this icon, the currently opened application is minimized so that you have access to the desktop in order to select another program to run. While this capability was available in Version 1.0 by simply tapping the open applications banner on the Taskbar, I think that the added icon is more obvious. As for the auto hide feature, now that I've had a chance to use it on more than just the Version 2.0 emulator, I'm not sure how I feel about it. I like the extra space on the screen, but I find it difficult to find the little spot at the bottom of the screen where you must tap with the pen to recall the Taskbar. Of course, all the H/PCs include a "Windows" key on the keyboard to recall the Taskbar, so this is not too much of an issue. Still, I find myself changing the setting back to leaving the Taskbar on the screen at all times. This is one of those personal decisions we all have to make.

One of the most important features of version 2.0 is the ability to



About The Author

David Shier is a former software engineer and marketing/sales director in the electronics industry. He is now President of Shier Systems & Software, Inc., which develops and markets products and applications for the handheld computer market. David is a regular contributor to *Handheld PC Magazine*. He can be reached at: Phone: 805-371-9391; Fax: 805-371-9454; E-mail: david@shier.com; Web site: www.shier.com.

Impressions of the 360LX Palmtop PC

A factual description of the 360LX is found in the Your H/PC section, p. 66.

The first thing I noticed about the 360LX was that you can't tell it apart from the HP 320LX. The outside case is identical. You will notice quite a few differences when you turn it on.

For example, the 360LX is considerably faster than the 320LX before it. Microsoft says that they made the heart of Windows CE 2.0 (known as the "kernel") smaller and faster than version 1.0. This may have something to do with the improved speed, but the fact that the 360LX has a newer 60 MHz CPU (almost twice as fast as the 320LX's) certainly helps performance. The 360LX also comes with 8 Mb of internal RAM, twice as much as the 320LX. In addition, the display is a bit easier on the eyes. This is due to the 16 level gray scale as well as a white backlight, which replaces the green one on

the 320LX. Of course, in addition to the hardware changes, the HP 360LX comes with Windows CE Version 2.0 and all of its improvements.

Hewlett-Packard also packages software with the 360LX that is not a standard part of Windows CE. The month-at-a-glance program provides a view of all your appointments for the month on a single screen. If you double-tap on a day (in the month-at-a-glance program) the Calendar program is started to allow you to view the appointments for that day.

Another value-added program shipped with the 360LX is bFIND from bSQUARE. bFIND is a program that searches your H/PC files and databases for text or simply file names that you can't find in a sea of directory folders. This is a handy utility if you use your H/PC for more than a simple appointment book and email system.

print directly from the H/PC. I printed this document directly to an HP LaserJet 6P using the IrDA port as well as using one of our direct-connect parallel printer cables. The printer output supports graphics as well as True Type fonts. The print dialog provides a field for selecting the type of printer, however, the Windows CE 2.0 handhelds only come with a PCL (HP LaserJet) printer driver: It will be up to each printer manufacturer to supply Windows CE drivers for their printers.

I'm pleased with this new machine. It's appreciably faster than its predecessor is, and the changes in Windows CE are a big step forward. With additional support from third party software and hardware, it's obvious that the new Windows CE 2.0 H/PCs will further the acceptance of ultra-mobile computing.

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By Todd Ogasawara

**Forum Manager
Microsoft Network
Windows CE Forum**

I have the great pleasure of being the founding forum manager of the Windows CE Forum on the Microsoft Network. The Microsoft Network (MSN) provides content (e.g., the various computing support areas like the Windows CE Forum) as well as Internet access. The forum consists of a set of web pages, an on-line chat room, news groups, and a file library. You can use Microsoft Chat (free) or some other IRC (Internet Relay Chat) client to participate in the real-time online chats. You need to use Microsoft's newsreader (also free) to read the various newsgroups. The forum is a virtual gathering place for Windows CE enthusiasts and developers to come together.

The Windows CE Forum can be accessed at: <http://msncomputing.msn.com/forums/windowsce/>

However, that URL will change a few months after the launch. When the final URL home for the forum is established you will be

redirected to the new page when you access the old URL.

Table 1 below lists the newsgroups available to Windows CE users and developers on the MSN Windows CE Forum, along with a brief description of each newsgroup.

Accessing the Microsoft Network from the Handheld PC

Of course, you can access the Microsoft Network via your desktop PC, visit newsgroups, post and receive messages, and download shareware and freeware. Indeed, that may be a more convenient way to do it when you have access to a desktop PC. But one of the major reasons for the development of Windows CE was to give handheld PC users that capability. The rest of this article explains how to use your Windows CE 1.0 Handheld PC (H/PC) to connect to, and access the features of MSN. Table 2 below briefly summarizes the steps involved:

MSN Windows CE Forum Newsgroup Names	Newsgroup Descriptions
windowsce.announcements	Windows CE Forum announcements
windowsce.general	Miscellaneous Windows CE discussions
windowsce.tips_faq	Windows CE Tips and FAQs
windowsce.news	Windows CE News
windowsce.devices.hpc	Windows CE Handheld PCs
windowsce.devices.embedded	Windows CE Embedded devices
windowsce.devices.other	Windows CE miscellaneous form factors
windowsce.devices.webtv	Windows CE Web TV
windowsce.devices.communication	Windows CE communication devices
windowsce.accessories	Windows CE accessories: electronic and non-electronic
windowsce.software.commercial	Windows CE commercial software
windowsce.software.shareware	Windows CE shareware and freeware
windowsce.software.programming	Windows CE programming tools
windowsce.developers.hardware	Windows CE hardware developers' discussions
windowsce.developers.software	Windows CE software developers' discussions
windowsce.lifestyle.work	Windows CE in the office and business travel
windowsce.lifestyle.home	Windows CE in the home
windowsce.lifestyle.entertainment	Windows CE entertainment, games, hobbies, etc.
windowsce.future	Speculation about the future of Windows CE
windowsce.projects	Windows CE Forum Projects, Theme discussions, etc.

Table 1: Newsgroups available to Windows CE users and developers on the MSN Windows CE Forum

Connecting to MSN

The first step is connecting to your ISP (Internet Service Provider). You can find a description of this process on page 59 of the Fall 1997 issue of *Handheld PC Magazine*. I used MSN as my ISP (Internet Service Provider) by establishing a PPP (Point to Point Protocol) session as you would with any other ISP. The instructions below are for that approach and the one possible difference is the way the User name/Login-name is designated. My username, for example, is Todd_MSN. The name I specify in the Username box is MSN/Todd_MSN. Notice the "MSN/" prefix to my username. This is needed because MSN uses a wholesale Internet access provider (UUNET) that provides access for many ISPs. The "MSN/" prefix identifies you to the network and lets you login to MSN from any MSN/UUNET node around the world. There are no additional access charges when you "roam."

After connecting to a phone line, I tapped on Start, Programs, Communication, Remote Networking, and New Connection. I configured the New Connection as follows:

1. I specified a Dial-Up Connection—"Connect to MSN."
2. I selected my modem.
3. I entered my entire telephone number.
4. I set the following preferences in Configure: Baud rate: 115200; Data Bits: 8; Parity: None; Stop Bits: 1; Flow Control: Hardware.
5. I set TCP/IP Settings as follows: Check Server-assigned IP

address; Check Log on to network; Check Use software compression; Check Use IP header compression; Check Server-assigned name server addresses.

6. I created a desktop shortcut of the "Connect to MSN" dialup connection.
7. I used "MSN/Todd_MSN" as my user name.

Web Browsing

Pocket Internet Explorer is a subset of Internet Explorer. It has a similar interface as IE, it functions the same and has many, but not all, of the features of Internet Explorer. The version available for Windows CE 1.0 is more like Internet Explorer 2.0 than the current Internet Explorer 4.0: Pocket Explorer for Windows CE 1.0 lacks support for frames, styles sheets, JavaScript, Visual Basic Script, Java, and ActiveX. It is still a serviceable web browser for many of the sites I visit for news and other information. I have not found its lack of modern features to be a severe problem. Unfortunately, Pocket Internet Explorer for Windows CE 1.0 cannot access web pages behind the Microsoft Network subscription wall. This is because

MSN Activity	Tool Used	Result
Connecting to MSN via PPP	Microsoft Windows CE Remote Networking	Connection successfully established
Web Browsing	Microsoft Pocket Explorer	Most pages are viewed successfully. Current version does not support frames, style sheets, Java, or ActiveX. Cannot view pages behind the MSN subscription wall due to lack of support for MSN's secure authentication.
E-mail	Microsoft Inbox	E-mail can be sent via SMTP. E-mail cannot be received via POP3 due to the lack of support for MSN's secure authentication protocol
News Reading	BSQUARE bMOBILE News	Cannot view msnnews.msn.com due to lack of support for MSN's secure authentication protocol. Can view other NNTP servers like msnnews.microsoft.com
Online Chat	BSQAURE bMOBILE Chat	Did not test
File Library Access	NA	As of 10/30/97 the MSN libraries had not migrated to a non-proprietary format.

Table 2: Steps involved in connecting to and accessing the MSN.

the browser does not support MSN's secure authentication protocol. Pocket Internet Explorer for Windows CE 2.0 will remove many of these limitations.

E-mail

The Windows CE 1.0 e-mail client Inbox supports the POP3 and SMTP e-mail standards. POP3 is an acronym for Post Office Protocol 3. It is mail server protocol that holds

Then you can synchronize your Inbox with your Windows CE Inbox. You can take your Windows CE H/PC offline at that point and respond to each message at your leisure (in a train, plane, sitting outside, etc.). Then, you can send your e-mail via MSN since SMTP for sending e-mail is accessible.

Newsreading

Windows CE does not provide a

(file transfer protocol). However, at this time, this feature could not be tested.

Windows CE 2.0 and MSN 2.5

This set of hints and tips for using your Windows CE H/PC with the Microsoft Network was written before the availability of Windows CE 2.0 systems and the official launch of MSN 2.5. Reports from various news sources indicate that Windows CE 2.0 adds many features that will make it more useful for web and e-mail access. There are also reports that speculate that the Microsoft Network will move some of its areas out of the subscription area. This would effectively remove the access problems caused by the lack of secure authentication support in Windows CE 1.0.

Todd Ogasawara currently lives in Hawaii where he is a senior engineer at one of the largest telephone companies in the U.S. during the day. He has worked as a contractor to the Microsoft Network since May 1995. He is the Forum Manager for the MSN Telephony Forum as well as the new MSN Windows CE Forum. His interest in handheld PCs started when he first bought a Sharp PC-1500 calculator over a decade ago. Since then, he has used an HP95LX, an Apple MessagePad 130, and a HP320LX (all still functioning).

Todd can be reached at todd_msn@msn.com. His personal Windows CE web page can be found at home1.gte.net/todd_ho/CE/

The forum is a virtual gathering place for Windows CE enthusiasts and developers to come together.

e-mail until a POP3-compatible mail client asks for the messages and attachments to be downloaded. SMTP is an acronym for Simple Mail Transport Protocol. It is a protocol that defines the message format and the message transfer agent (MTA), that stores and forwards e-mail.

The new MSN e-mail servers are POP3/SMTP compliant and found at: pop3.email.msn.com and smtp.email.msn.com. These are the addresses that are entered in the Windows CE Inbox/Properties text box entries. pop3.email.msn.com is entered in the "Required Mail Host" text box and smtp.email.msn.com is entered in the "Optional Host for sending messages if different from the Mail Host" text box.

You can send e-mail via MSN's SMTP server. However, you cannot receive mail via the POP3 server because the Windows CE mail client does not support MSN's secure authentication protocol. I have heard rumors that the Windows CE 2.0 e-mail client may support secure authentication.

There is an indirect-workaround that may be helpful to those of you who receive a great deal of e-mail correspondence. You can receive your e-mail via a Windows 95 PC.

NNTP newsreader client. However, anyone who reads or contributes regularly to USENET-style newsgroups will definitely want to look at the bsQUARE Mobile News client. BSQUARE purchased the code from AdageUS. You may have seen an earlier version named mobileNews. The client works remarkably well. I found it quite comfortable to read news on the public msnews.microsoft.com public news server. Unfortunately, I could not read news on the MSN msnnews.msn.com news server that uses MSN's secure authentication protocol.

Chat

Windows CE does not provide a chat client either. However, bsQUARE's Mobile IRC fills that void admirably. Unfortunately, as we learned in the paragraphs above, the MSN secure authentication protocol does not allow us to participate in chats behind the MSN subscription wall.

File Library Access

The current MSN file libraries are in a non-web format. By the time you read this, the libraries should be accessible via the web. I assume file access will be via ftp

Microsoft Network: \$19.95 per month flat rate or \$6.96 per month for content only (access via your own Internet Service Provider); Phone 800-386-5550 (in the US), 1-813-557-0613 (non-US, North and South America), 44 181 247 9042 (all other countries); www.msn.com

MobileNews and Mobile IRC: \$24.50 each / \$39 for both

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America Online's Windows CE Resource Center

By Rich Hall, Managing Editor

(Thanks to AOL for furnishing us this information.)

AOL's Windows CE Resource Center (keyword WINDOWS CE or WCE) provides in-depth coverage of handheld computers (H/PCs) using the Microsoft Windows CE operating system. Members can participate in live chats, post questions and answers, download software, surf Windows CE Web sites, and compare H/PCs here. The Windows CE H/PC Resource Center, part of AOL's PDA Forum, includes the following major sections:

Message Center

AOL's Windows CE Resource Center includes an active messaging area for discussing H/PCs with other AOL members and CE Resource Center team members Chris De Herrera, Larry Finch, John Schettino, and Craig de Fassel. There are sections for individual H/PC models, tips, help, general discussion, development, and comparing CE handhelds to other PDAs. The message area provides 24 hour a day discussions for H/PC fans sharing their knowledge of Windows CE.

Windows CE Software Libraries

Software relating to Windows CE

devices, or designed to run on the H/PCs, is found in this collection of categorized libraries. Current categories include Databases & Lists, Graphics & Sounds, Accounting, Analysis Tools, Games, PIMs, and Utilities. Each library includes shareware, freeware, commercial demos, and other files for H/PC enthusiasts. Files can be found by browsing, or using the PDA Software Search to locate specific types of files quickly—simply select the "Other PDAs & Palmtops" category.

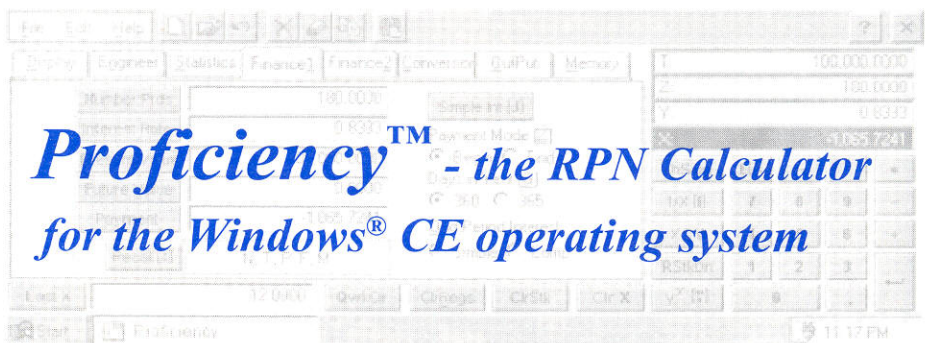
Windows CE Tips and Frequently Asked Questions

AOL also offers a Windows CE Tips & FAQ center. This information resource contains tips and shortcuts

from experienced H/PC users, as well as general help on related activities such as file decompression. The area is continuously updated, including H/PC Easter Eggs, tips on PC cards, upgrading memory, communications and ISP information, and more. Members will often find answers to their questions in this area.

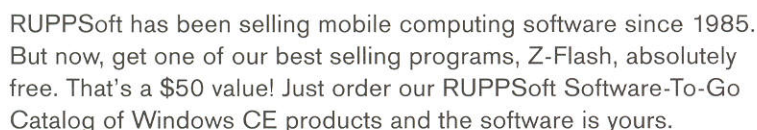
Windows CE Web Collection

This collection of Web sites includes links to dozens of Windows CE pages, making it easy for members to find additional CE resources from a single location. The Resource Center also highlights specific Web pages, such as Chris De Herrera's Windows CE ISP Settings,



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<http://www.mvasoftware.com>

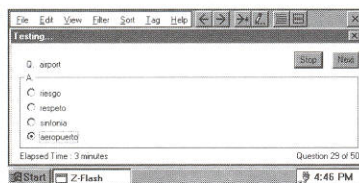
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Comparisons, and CE 2.0 Information pages. AOL members only have to email the URL of a CE-related site and one of the CE forum team will have it included in the collection.

This area includes press releases and special announcements about Windows CE and third party products. The area is updated continuously as new products are announced.

Windows CE-only chats are held at least monthly in the PDA Forum's conference room. These chats are normally held the third Wednesday of the month at 9:30 p.m. Eastern (U.S.) Time, but may be held on other nights to accommodate special events, such as the recent CE chat held live from COMDEX that included an H/PC giveaway. Other recent chats have regularly featured expert guest Jim Floyd, Handheld PC Product Manager at Microsoft. Chat schedules for the next week and month are posted in the conference area, along with transcripts of recent conferences.

The CE Resource Center includes extensive comparative

CompuServe

The HPHAND and PALMB CompuServe forums contain sections dedicated to Windows CE-based handhelds. These sections are popular, well-maintained, and inhabited by helpful, knowledgeable fellow users. See page 59 of the Fall 1997 issue for instructions on how to connect to CompuServe using your H/PC. A future issue will contain an in-depth discussion about CompuServe and H/PCs.

information on H/PCs. These comparisons include user reviews of each H/PC, and Web table of H/PC technical specifications. These help members review the relative strengths and features of each handheld PC when trying to determine the best unit for their needs.

E-TEXTS

AOL's "Palmtop Paperbacks" section includes hundreds of electronic books, magazines, and newsletters available for downloading. These e-texts can be read on H/PCs using Pocket Word, Internet Explorer, or third party book read-

AOL's "Palmtop Paperbacks" section includes hundreds of electronic books, magazines, and newsletters available for downloading.

ing software. AOL's electronic book collection is the largest, single text collection on-line, and includes several exclusive titles not in the public domain. The e-texts are categorized by topic in multiple libraries including science fiction, fiction for the family, classical literature, biographies, history, computer corner, reference, mystery, and more. (See page 46 for more on E-texts.)

AOL's Windows CE Resource Center is a lively and informative area, continually adding content to reflect the latest CE developments. AOL members can access the area using keyword WINDOWS CE. Those interested in becoming members can call AOL at 800-827-6364, or visit AOL's Web site (www.aol.com) for further information.

Windows CE Utilities and Games — Available Now

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Quick Tips & Handheld PC Tricks

Thanks go to all the people who have written tips for, and shared their knowledge of the Handheld PC and Windows CE. Especially to the folks at Microsoft, manufacturers of the H/PCs, members of online forums supporting the H/PC and users of the handheld PC. Specific thanks for some of this issues tips goes to Riley McArdle; Richard Colman; Tom Gibson, Technical Editor of the Handheld PC Magazine.

Add home town to World Clock's City list

World Clock lets you keep track of the current date and time wherever you are. World Clock has an extensive, but not exhaustive list of cities. *Handheld PC Magazine* is published in Fairfield, Iowa — a small town of 10,000 in Southeast Iowa. It's not surprising that Fairfield is not listed in World Clock's City list.

Fortunately, it's easy to add cities to World Clock. Open World Clock and tap on Edit Add City. You are presented with a list of cities and asked to "Select the city closest to the one you want to add." The two largest cities in Iowa are Des Moines (the state capitol) and Cedar Rapids (a industrial center). Cedar Rapids is closer to Fairfield, so I started to type in "Cedar Rapids." Typing in "C" took me to the first city in the list beginning with "C," Cairo (Egypt). Typing in "e", the second letter in Cedar Rapids, took me to the first city in the list beginning with "ce," Cedar Rapids. (I noticed that I have to type the letters in relatively quickly, without more than one second between letters, or Windows CE thinks I'm looking for a new city. For example, if I wait more than one second after typing "C" and then type "e" I go to Edinburgh, Scotland, the first "E" city on the list.)

I highlighted Cedar Rapids and pressed (ENTER) and the Add City screen was displayed (see right).

The screen lets you add the name of the new city along with information about the country, time zone, latitude and longitude, country and city phone prefix, and the nearest major airport. Because I selected Cedar Rapids as the nearest city, World Clock automatically entered Cedar Rapids' information for country, time zone, etc. I typed in the City Name (Fairfield, IA 52556), made changes in the Latitude (41E 39' North), Longitude (91E 31' West), City area code (515) and tapped on (OK).

Next, I set Fairfield as my Home city. I tapped on the "Time Zones" tab at the top of the World Clock screen to display a map of the world with Home and Visiting cities displayed. I tapped

on the "Home" tab to the left of the screen and then tapped on the down-arrow next to the City field to display the World Clock City list. I started typing in "Fairfield." Since it's at the top of the list, the highlight bar jumped there after I had entered the letter "F." I tapped on (ENTER) and Fairfield was my Home city.

Connecting your H/PC to Windows NT

If you are trying to connect your H/PC to a Windows NT 4.0 machine using HPC Explorer 1.1 and are receiving a "Critical Error 628" message and then getting disconnected here's what to do. Buried in the end of the NT readme file is a small notice that says use "guest" as the login from the H/PC. By doing this, you should not receive the Critical Error 628 anymore.

Add information in Contacts

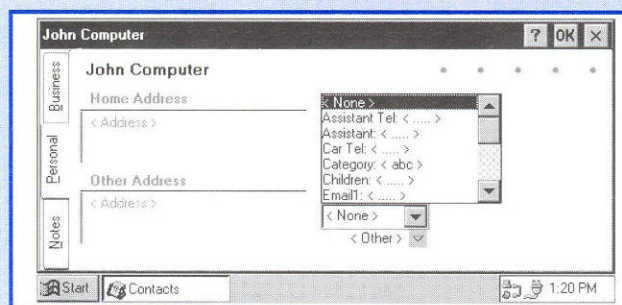
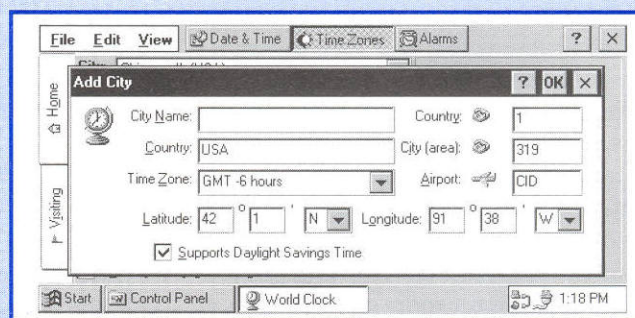
Additional information fields can be added to both the Business and Personal views in Contacts (see below). Tap the DownArrow key next to <None> and you get a list of choices for that field (e.g., Car Tel.; Assistant Tel.; etc.).

If you select a field that appears in another view, and you've already entered data in that field, the data comes with it. (i.e., if you enter your Work Phone number in the Business view, switch to the Personal view and select Work Tel from the <other> list, the field title is changed to Work Tel and the number you already entered appears.)

Improve Synchronization time

By default, HPC Explorer synchronizes all appointments from the last two weeks to all weeks in the future. This includes all your holi-

**World Clock's
Add City screen.**



**You can add fields
to the Business
and Personal tabs
in Contacts.**

days. You may want to set the Synchronization option in HPC Explorer to some weeks in the future to reduce the number of appointments that get sent down to the desktop. To do this, start HPC Explorer on the desktop and click on Tools - Synchronization Manager - Databases - Options and select the number of weeks into the future that you want HPC Explorer to synchronize your appointments.

Designing Web pages for Windows CE

If you want to design WWW pages to be viewed on an H/PC, here are a couple of things to keep in mind.

1. Limit the width of the page. Since most of the Handheld PCs have screens that are only 400 pixels wide, keep this in mind and design your pages to that width.
2. Keep graphics simple, small and to a minimum. Many people designing WWW pages today do so with today's desktop machines in mind. They have big hard drives, high-resolution monitors, fast processors and lots of RAM. This is not the case with the H/PCs, the pages will load much faster and will be much more user friendly if they are designed with the H/PC in mind.

Doing a "Right-click"

The mouse attached to your desktop PC usually has a left button and a right button. Most features are accessed by pointing to a menu and clicking on the left button. Some programs, however, access features with the right button — this is a "right-click."

Not all Windows CE applications support the right-click, but some do, including Windows CE Explorer. Press (Start) Explore to go to the Explore screen. Right-click on an icon by holding down (Alt) and tapping on the icon. You are presented with a pull-down menu that will let you Open the application, Copy it, create a Desktop Shortcut, Rename it, and list its Properties.

See the Names of the CE Developers

You may or may not have heard the expression "Easter Egg" when someone is talking about a program. An Easter Egg is a hidden feature that was put in by the programmers and not officially published by them. Here is how to uncover an Easter Egg in the Windows CE Operating System. Start a game of Solitaire and play until you uncover the Ace of Hearts. Move the Ace to the foundation. Press Control-Alt-Delete to bring up the task manager. Press cancel in the task manager window. Click on the Ace of Hearts to see the CE Developers! Their names will bounce across the screen. If you know of any other Easter Eggs let us know, and if it is a true Easter Egg, we will try to publish it.

Save power!

To conserve power, the Handheld PC is set to automatically suspend operation after three minutes if you haven't touched the keyboard. When this happens, you'll notice that the screen goes blank.

You can set this time to as low as one minute and as high as five. Tap (Start) and Settings to go to the Control Panel. Double tap on the Power icon and then double tap on the Power Off tab to go to the Auto suspend screen.

Tap on the pull-down list and select 1 or 2 Minute. Your H/PC will auto-suspend quicker and save you battery power.

Another simple trick requiring a little more discipline is to simply press the OFF button whenever you're finished. Don't use up the extra minute of power waiting for the H/PC to turn itself off. This will be particularly effective for people who use their H/PC frequently, for short periods of time each use.

Some H/PCs have a backlit screen. Whenever you use the backlit option, you increase the drain on the batteries. Once pressed, the screen stays backlit for a few seconds (the time varies with different H/PCs). Get in the habit of manually turning off backlighting when you're finished. A few seconds here and there add up to longer battery life.

A final tip that will save your batteries is to connect your H/PC to an AC adapter whenever you can. Have a spare adapter at the office and another at home. When you sit down, plug the H/PC in before you turn it on. This is particularly useful for people who spend extended periods of time at a desk.

Always put your H/PC back in your pocket

The Handheld PC's main strength is also a security weakness. It's small and goes with you wherever you go. It easily slips in and out of your pocket, and can just as easily be left behind.

Of course, you can password protect your Handheld PC. And you definitely should back it up regularly. But you still lose valuable information if you leave it behind.

Your Handheld PC should be with you at all times, in a coat pocket, unless you're at home or sitting down at your desk in the office. Then you should put it in the same place. At home, keep it in the same drawer or on the same

table all the time. At work, connect it to an AC adapter and place it on your desk to the right of your computer keyboard. All other times, it should be in your hand or pocket. The key is that you should know where to look for it.

If you're at a restaurant and have to look up a name in Contacts, put it back in your pocket immediately. If you're in a phone booth and have to look up a number, put it back in your pocket immediately. The trick is to not set it down in an unusual place, and to always put it back in your pocket when you're finished.

Tapping with stylus doesn't start program or activate feature

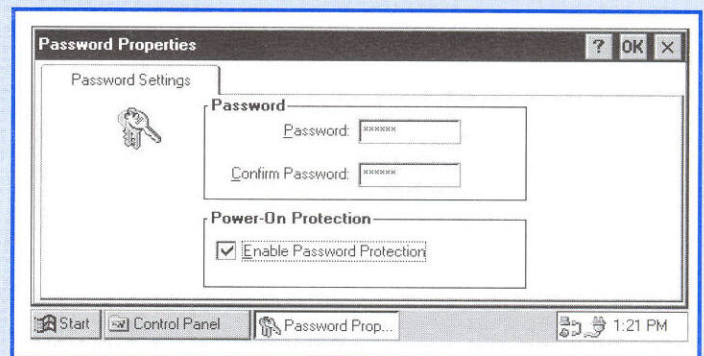
If you find that nothing is happening when you tap on an icon, remember that you have to tap twice on a program icon to start the application. If the application still doesn't open, or if tapping once on a feature or program menu doesn't do anything, your touch screen calibration may be off. This can happen if you make a mistake when calibrating the touch screen.

You can correct this by activating Stylus calibration in the Control Panel. Normally you would open this by tapping on (Start) and Settings to go to the Control Panel, and then tapping on Stylus. But if your calibration is off, you may not be able to do this. An alternative way to start the calibration procedure is to hold down (CTRL) and (ALT) and press (=).

Follow the screen instructions to re-calibrate your touch screen. Press (ESC) to cancel the calibration.

Password protect your Handheld PC

The great thing about the Handheld PC is that you can take really important information with you wherever you go. Two dangers are associated with this: losing the information, or having it fall into the wrong hands. If you keep good backups of the information, you don't have to worry about



The Password Properties screen in the Control Panel lets you activate password protection and specify a password.

Inside Windows CE

losing it. But if the information is sensitive personal or business information, you'll want to protect it.

Tap on (Start) and then Settings to go to the Control Panel. Then double tap on the Password icon to go to the Password Properties screen (see previous page).

Enter the password. Then type it again to confirm it. Finally, tap on the box labeled "Enable Password Protection" (make sure a check mark appears in the box). Your H/PC is password protected.

With password protection enabled, whenever you turn your H/PC on, you are asked to enter the password. Without the password, you can't go any further.

(Note: Pick an easy-to-remember, but not obvious password. If you forget your password, the only way to use your Handheld PC again is to perform a full system reset according to the manufacturer's instructions. This deletes all your data!)

Leave commonly-used applications open, but minimized

The alternative to closing an application is to "minimize" it. For example, let's say you're writing a letter in Word and you have to interrupt this to enter an appointment into the Calendar. Instead of saving the document and closing the application, you can simply tap on the Word application button on the taskbar at the bottom of the screen. Word disappears from the screen but is still alive in the memory of the Handheld PC. Go to Calendar, enter your appointment, and then tap again on the Word application button to "maximize" Word. You don't have to reload the document or search for your place. You're back exactly where you left off!

A quick way to access your applications is to leave them open all the time, but minimized. All you have to do is tap on the appropriate taskbar button and you're in business.

Why carry a watch when you've got an H/PC

When you need to find out what time it is, pull out your H/PC and look at the task bar.

You say the time's not displayed on your H/PC? Set it up as follows:

1. From the Start menu tap "Settings."
2. In the Control Panel, double-tap "World Clock."
3. Tap the "Date & Time" tab, select the "View" menu.
4. Finally, check "Show Clock in Taskbar."

View file extensions?

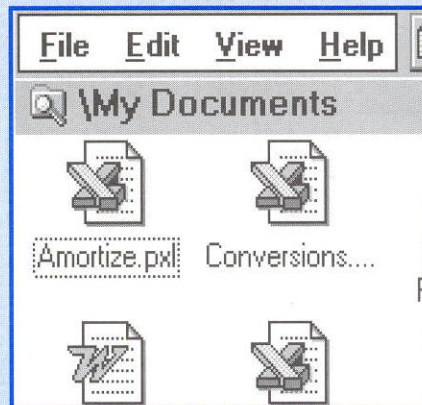
If you've used DOS, you probably like seeing file extensions. They are the three-digit set of characters that comes after the period in a DOS file name. For example, the document I'm working on now is named TIPS2.DOC. The ".DOC"

indicates that it is a MS Word document.

You can configure Windows CE Explorer to display your files with file extensions.

1. Open Explorer
2. Select the "View" menu
3. Choose Options
4. Uncheck the "Hide File Extensions" box.

When you look at your documents in the My



Set up Windows CE Explorer to display file extensions.

Documents screen, they will have the three digit file extension.

Error: "Recycle Bin Maximum Size Reached"

If you've been "cleaning house" on your H/PC and deleting a lot of files, you may get the above message. Don't worry. Windows CE uses the maximum size limitation as a notification threshold, not a strict level. If you leave your unit as is, you'll still be able to delete files and send them to the Recycle Bin, you'll just keep getting the warning.

If you want to increase the memory allocated to the Recycle Bin, Alt-tap on its icon, select Properties and move the slider. To remove files immediately, instead of sending them to the Recycle Bin, check the "Do not move files to the Recycle Bin" box on the same screen.

PC Card icon missing

When you insert a PC Card into your H/PC an icon will appear on the task bar indicating that a card is inserted. It takes a few seconds for the H/PC to recognize the card and display the icon. Don't get impatient and repeatedly insert and pull the card out, or turn the unit on and off.

Inbox completes addresses

When addressing an email message in Inbox, go to the "To:" box and begin typing the first few letters of either the recipient's name or their email address. Then click the Address Book button on

the toolbar. If their name is in the Address Book, it will complete the address for you.

Paste signature into Pocket Word

One of the nice things about Pocket Word is that you can paste graphics into it. H/PC user Chris Marriott of the UK uses this feature to cut his signature from Pocket Paint and paste it into letters he composes in Pocket Word. H/PC user Don Vine cuts and pastes Pocket Excel tables into his Pocket Word documents.

Pocket Paint is a pocket-sized version of the Windows95 Paint program. It comes with the Microsoft PowerToys program, available free of charge at Microsoft's Website: (www.microsoft.com/windowsce/hpc/software/powerr.htm)

Tapping harder isn't better

If you tap something on the touch screen and nothing happens, tap again gently and hold it for a second. Don't tap harder – it won't help, and it may damage your touch screen. Take your time with the double-taps, also. If you don't like waiting, you can go to the Stylus control panel and set the double-tap speed faster and set the area of the double-tap to be larger.

Personalized H/PC sounds

You can create your own personalized sounds and hear them every time you launch an application. Create or record a sound on your desktop computer and save it as an 8bit, 11kHz, mono (.wav) file. Transfer the sound file to the Windows folder on your handheld PC. On the handheld PC, use the Volume & Sounds control panel to assign the new sound to system events. On the Sound tab, select an Event, then browse to the new sound you added to your handheld PC. When you have finished adding all of your sounds, tap Save As under Scheme.

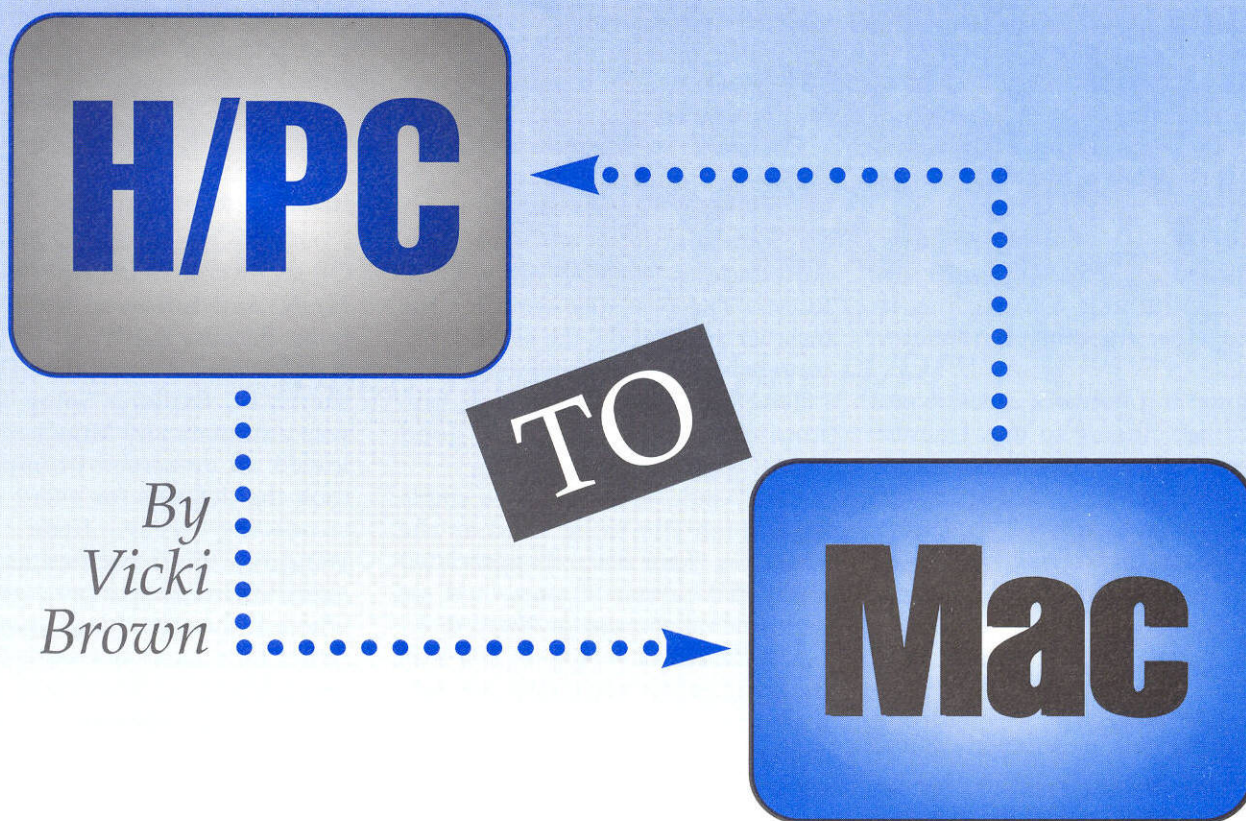
If you want to turn off the key clicks to avoid making noise while taking notes during a meeting, use the Volume & Sounds control panel to turn down volume on key clicks and taps.

If you just want the sounds off temporarily, use the Volume & Sounds control panel to turn off all sounds. Also, be sure to clear the Notifications check box to make sure your device doesn't surprise you with a noise.

Mimic template behavior in Pocket Word and Pocket Excel

Although Pocket Word and Pocket Excel don't support a formal Templates feature, you can mimic this behavior by creating and saving a document that contains the formatting you want to use as a template. Then, any time you want to use that document to create a new file, open the document and immediately save it with a new name. This is a good way, for example, to change the default font you use for all of your documents.

Connecting To The World



I'm a Mac addict.

After more than a decade of using and getting to know Macintosh® systems, I have to say it's my favorite GUI interface and my favorite desktop system. Much of my day is spent in the company of my Mac and I spend far too much of my paycheck on Mac software. If anyone had told me a year ago that I would be running Windows, voluntarily, I would have laughed.

All that changed when I saw my first Windows® CE Handheld PC. I had to have one! This past May I became the happy owner of an HP 320LX (I love its wider screen). It had everything I wanted in a handheld – a great concept, a useable keyboard, and the promise of oodles of third-party software. The interface was even, dare I say it, almost Mac-like. There was only one small problem – getting it to work with my Macintosh.

A PC Companion

The Windows CE system, at least for the time being, is designed to be a “PC companion” for Windows 95 desktop PCs. To be a Handheld PC owner and get the most from Windows CE, one must, of necessity, use a Windows 95 desktop computer! The backup and synchronization software (H/PC Explorer, Schedule+, etc.) runs only on a Windows 95 system and the third party applications expect to be

About the Author

Vicki Brown has been working with Macintosh systems, both at home and at work, since joining Apple Computer, Inc. in 1986. Vicki recently left Apple to join Incyte Pharmaceuticals, where she requested a Macintosh as her desktop system. Her HP 320LX palmtop is the first Windows system she has owned; her friends like to tease her about her new toy.

unpacked on, and installed from a Windows 95 system! Given how much I like adding software (I am never satisfied with the default system), what was I to do?

I tried to avoid the problem altogether by purchasing a used 486 desktop PC from a friend. I bought a copy of Windows 95 at a used-computer shop, installed Windows and created a partnership with my H/PC. Everything worked fine, if not altogether smoothly, for about a month.

Printer and network access were both rather clumsy to use. I never did get a dedicated printer attached to the 486; printing a document required that I "print" to a file, which I then transferred by floppy disk to my Macintosh, and dumped to the printer.

My network connection was similarly strange. I like to use Dartmouth University's Fetch program for FTP transfers from the Macintosh, so I would download new software to my Mac, transfer the files via Iomega Zip disk to the 486, then install my new programs. This worked, but it was rather tedious.

Then, one fateful day, my 486 wouldn't boot. I replaced the hard disk, reseated cables, and attempted to reinstall Windows. It got almost all the way through before the installation failed. I tried one more time – again it failed. I was looking at some sort of hardware error I had neither the time nor the inclination to solve. And, of course, I hadn't backed up my H/PC in three weeks! At that point, I decided to abandon the PC hardware and try to find a solution on my Mac.

The solution turned out to be SoftWindows™ 95, from Insignia Solutions (www.insignia.com; suggested retail price, US\$199). SoftWindows 95 creates a Windows 95 environment within the Mac's operating system. It promised everything I needed: Windows 95 sup-

port, hardware peripherals support, and, most important, it would run on my Power Macintosh 7100/80 (a sprightly enough machine for its day, but not the fastest Power Macintosh ever made).

SoftWindows 95 Installation

The installation went smoothly. SoftWindows 95 comes on two CD-ROMs. The first disc contains the installer application; the second disc contains the Windows 95 data files. I chose the Easy Install option, presuming that Insignia had a good idea of what was best.

SoftWindows 95 creates a single Macintosh file to be used as the Windows "hard disk". I appreciated that SoftWindows 95 presented me with several choices for "hard disk" size: 170, 200, 300, 400, or 500 MB. Insignia also provides an HD Expander utility which can be used at a later time to increase the size of the hard disk file if you decide you've made it too small.

Next, I was given a set of choices relating to memory allocation: Delta Cache, PC Extended memory, and Windows Desktop (virtual screen) size. The installation guide provides suggested settings for minimum memory usage, or best performance, as well as a discussion of optimizing performance. I chose the fastest DeltaCache size, 15 MB of Extended PC memory, and a Medium (800x600) desktop size. As I made my choices, the Installer updated the total amount of memory SoftWindows 95 would require to run. (The installer also provides a warning if your selections exceed the amount of Macintosh memory available.)

After the installation finished, I launched SoftWindows 95, filled out the registration form, and waited a few minutes while the program updated drivers and configuration files "for optimum performance." These updates are only run the first

time SoftWindows 95 is launched. At last, amazingly, I had a Windows 95 desktop on my Macintosh screen, ready to install the desktop software to support Windows CE and my H/PC.

Installing H/PC Explorer

I inserted the Microsoft Windows CE CD-ROM that came with my H/PC and followed the instructions. Because SoftWindows 95 was active when I inserted the CD-ROM, the H/PC Explorer Setup Wizard was automatically launched. I followed all on-screen prompts and took the defaults for every choice. (Knowing very little about Windows 95, it seemed safest to allow the Installer to put everything where it thought things should go, rather than make decisions I might regret later!).

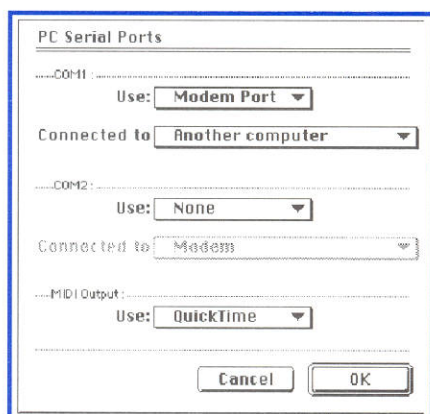
I was a bit concerned when the Setup program asked me to insert my Windows 95 disc so it could get the Dial-Up Adapter and TCP/IP Protocol. I inserted the second (WIN95DATA) CD-ROM from the SoftWindows 95 set and crossed my fingers. It took a long time for the Installer to scan the disc, but it eventually succeeded in finding the files it needed.

The last thing I did was to create the appropriate shortcuts for H/PC Explorer, again going with the defaults suggested by the Setup Wizard. This placed a shortcut on the desktop but (at least for now) no shortcut in the Startup Folder. Then I restarted Windows 95 and was ready for the next step in the process: connecting my H/PC!

Connecting the H/PC

I followed the instructions in the SoftWindows 95 manual to assign COM1 to my Macintosh serial (modem) port. The process is straightforward; select PC Serial Ports... from the Setup menu of

SoftWindows 95, then select Modem Port Connected to Another Computer under COM1, and click OK. In H/PC Explorer, under Communications in the File menu, I set the Communications Port to Serial cable on COM1 and I was ready to go.

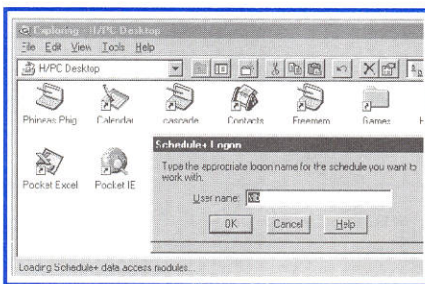


SoftWindows 95's Setup menu lets you assign the Mac's modem port as COM1 and configure it to connect to another computer.

You may decide to use another port (COM2, for example), especially if you also have a modem that you plan to connect under SoftWindows 95. If you intend to connect more than one serial communications device to the same (physical) Macintosh serial port, be aware that some devices may "grab" a port and not let it go as you might expect. To release the port, you may need to quit one or more MacOS networked applications, restart SoftWindows 95, or even reboot your Macintosh!

I was lucky enough to have a spare modem cable, from an old Global Village Teleport Gold modem, that wasn't in use anymore. This cable has a male Mini DIN-8 connector at one end (suitable for connecting to a Macintosh serial port) and a male DB-9 connector at the other, suitable for connecting to the female DB-9 connector on my H/PC connectivity cable. I plugged the modem cable into my Macintosh, connected the H/PC cable to

the other end, plugged in my H/PC, and started up H/PC Explorer. In a matter of moments, I had the H/PC Explorer Connection Dialog and the connection was established! I synchronized my schedule and performed a complete backup. The experiment was a total success.



H/PC Explorer screen showing the HP 320LX's desktop and the Schedule+ Logon dialog box.

Pushing the H/PC-Mac Envelope

Over the next few days, I tested the flexibility of my new Macintosh-H/PC connectivity.

First, I set up a Macintosh folder as a "PC hard drive." This is not the virtual hard disk created in the installation process, but a kind of "transfer disk" that I can access from either the Mac OS or SoftWindows 95 and transfer files between the two. I followed the instructions in the SoftWindows 95 manual to select a Macintosh folder and set it as my E: drive. The hard disk created in the installation process is the C: drive and can only be accessed from SoftWindows 95.

Then I copied a PocketWord file from my H/PC to my "desktop computer" (SoftWindows 95). The copying process converted the file to a WordPad document. Although I have Microsoft Word on my Macintosh, it cannot read WordPad documents.

Undeterred, I opened my file under SoftWindows 95 using WordPad, saved it as an RTF (Rich Text Format) document. Then I copied the file to my E: drive (my Macintosh folder) and opened the

file with Microsoft Word on my Macintosh. The first three paragraphs of this article, in fact, were written on my H/PC and transferred in this way; the article was completed using Word 5.1 for the Macintosh.

Next, I attempted to install an update of my favorite third-party Windows CE application, HPCNotes (www.ocr.com/hpc/hpcnotes.htm). I downloaded the update from the HPCNotes web site onto my Macintosh, then transferred the file to the folder I had previously designated as my E: drive.

From within SoftWindows 95, I transferred the installer package from the E: drive to a folder located on the "primary hard drive" (C: drive). Then I double-clicked on the package. The Install Shield application took a while to load and run, but the installation was flawless.

Printing a Windows document is very easy under SoftWindows 95. Just select Print from the application's File menu, choose the appropriate printing options, and click OK. The Macintosh Print dialog will appear; click OK again and the document will be spooled for printing.

Things I've learned

I've learned a few things in the process of performing this experiment. SoftWindows 95 on a PowerMac 7100 is slower than running Windows on real PC hardware. I've learned to be patient and to take care double-clicking (timing is important when the system is slow). The Install Shields and Wizard applications, in particular, take much longer to run than I expected. Eventually, however, they do run.

To increase performance, I've learned to use the E: drive (Macintosh folder) as a transfer disk only, copying files to the C: drive ("primary hard drive") before I use them. Things run much faster when they are stored on the "primary hard drive."

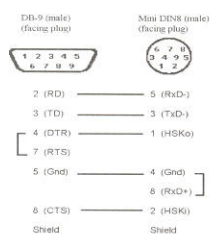
Occasionally, H/PC Explorer will fail to start communication services to the H/PC, resulting in a "Failed to Start Communications" message. H/PC Explorer then closes its main window and exits, leaving a connection icon at the far right end of the task bar.

Shortly thereafter, the H/PC usually tries to connect to the desktop system and generally succeeds. The icon in the task bar will show the connection, and can be double-clicked to bring back the H/PC Explorer window. Or you may need to launch the PCLink application, located in the Communications folder on the H/PC.

Connectivity cables a problem

I was lucky that the Mac modem cable I had on hand connected properly to the end of the H/PC connectivity cable. I've unsuccessfully tried to find another cable that works. Some cables don't work at all (no connection attempt is made). Others appear to work, but ultimately fail; for example, the H/PC may think a connection has occurred, but the desktop machine cannot establish a partnership.

For those who are interested, the figure below shows the "pinout" for my working modem cable.



Pins are numbered looking into the end of the cable (not into the connector socket on the computer). Some later Macintosh models use the Mini DIN9 serial connector; the MD9 is identical to the MD8 except that the 9th pin (absent in the MD8) carries voltage. This voltage is not required by the H/PC connection and will be ignored.

Cross Platform Computing with my Handheld PC

By Bill Carson

I am a home-based field expeditor for a major aerospace corporation, and I use my handheld PC (H/PC) everyday. As a field expeditor, I visit suppliers and verify that they are doing all they can to meet production schedules. When in the field, I need access to my files and documents. This is where the H/PC comes in handy. It is small and light, and holds all the documents and files that I need. The catch is that I must use it with both my company-supplied Apple Macintosh and my personal Windows 95 desktop PC.

I use the Mac as my connection to the company computer network 3000 miles away at the home office. Through it I access email and other resources on the network. I typically receive original documents in MS Word or Excel format. These files are sent to me as e-mail attachments, which I receive on the Mac. These files relate to material production status, test results, etc.

Since I spend a lot of time away from the office, I must take some of this information with me on my H/PC so that I may reference the data and/or edit the files in the field. But as you may know, the Windows CE H/PC was not designed to connect with a Mac. Fortunately, transferring information between the two platforms is a relatively simple procedure.

Mac to PC to H/PC, and back again

Below I have listed the steps necessary to retrieve files from the Mac and import them into a Windows CE based machines. This procedure assumes that you have a Mac that can read from and write to PC-formatted disks. It may seem like a lot of work at first, but after a few times, it isn't that difficult.

1. Open document in Word or Excel on the Mac.
2. Name and save the document to the Mac hard drive. I typically save these files to a folder titled "Transfer". These files are "transferred" from the Mac to the Windows 95 machine.
3. Insert an IBM formatted floppy disk into the Mac.
4. Copy the named document onto the floppy disk.
5. Insert the IBM formatted disk, with the named document, into the Windows 95 machine.
6. Open the document and save it with the appropriate file extension: .doc or .xls
7. Open up HPC Explorer and transfer the document into your H/PC. The H/PC should convert the file from Word or Excel into the pocket version with no loss of formatting or data.
8. Open the document on your H/PC and edit while in the field. Save any changes.

Reverse the process to transfer the data back to the Mac.
That's all it takes!

Bill lives in Los Angeles, and works as a field expeditor for a major aerospace company. When not working, he can be found riding or racing my mountain bike. Bill also enjoys scanning the night sky with his telescope from the top balcony of the apartment he shares with his wife.

Synchronizing Your H/PC and PC via Infrared Communications

By Don Hergert

You can connect your H/PC to a desktop or laptop PC's IR port, as long as the PC is running Windows 95, has Microsoft's HPC Explorer installed, has an IrDA-compliant infrared port, and is capable of running the Microsoft IrDA Extensions (at least version 2 recommended). The Microsoft IrDA Extensions can be downloaded for free from Microsoft's Web site (www.microsoft.com/windows95/info/irda.htm).

If you're using a notebook computer as your H/PC's partner, chances are you've already got an IR port. If the notebook computer doesn't have one, or if you're using a desktop machine, you can purchase an IR port from a number of companies.

If you purchase an infrared device for the purpose of connecting your H/PC to a Windows 95 machine, it needs to support the IrDA standard. One of the manufacturers of this type of add-on is Extended Systems, makers of JetEye PC (price: \$135, phone: 208-322-7575, Web: www.extendsys.com). As it worked out, after trying a number of add-on IR ports unsuccessfully (which I later found out was because they weren't IrDA compliant), I purchased a JetEye and attached it to my desktop machine. It worked first time around, no problems, and I've been using it

since both with HPC Explorer for my H/PC and with Windows 95's Direct Cable Connection for my mini-notebook computer.

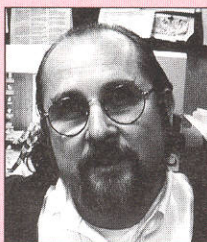
(Note: If you connect more than one system to your desktop like I do (CASSIOPEIA, HP 320LX, HP 200LX, and the Toshiba Libretto), you can avoid having a jumble of cables sitting around, one for each system you connect with. Infrared communications offer a universal connector for both of my H/PCs and notebook computers.)

Setting up the H/PC for an infrared connection

These instructions relate to a Windows CE 1.0 H/PC. Go to the Communications folder and create a new "Remote Networking" connection, which will be configured for the "Infrared Port" device.

1. From the Start menu tap Programs, Communications, Remote Networking, Make New Connection.

2. Give it a name you'll recognize in a few minutes (e.g. "My IR Connection") and specify a Direct Connection.
3. Hit Next and choose Infrared Port from the "Select the device ..." pull-down list.
4. Hit the Configure button and specify port settings as follows: Baud Rate: 115200, Data Bits: 8, Parity: None, Stop Bits: 1 and Flow Control: Hardware. All other settings for this remote Networking connection can remain at the default settings.
5. Hit OK, then the Finish button.
6. Close the Remote Networking window and get back to the Communications folder.
7. Tap the "PC Link" icon once to select it, and tap Edit, Copy, and then "X" to close that window, and every other window.
8. When you are back to the Windows CE desktop, press CTRL-V to paste this new PC Link icon onto your Windows



About The Author

Don Hergert lives with his family in Southern California and is a senior programmer analyst at Loma Linda University Medical Center. His specialty area is data communications and enterprise interface engine technologies in the health care setting. He has been a user of handheld computers since 1980.

CE desktop, where you'll use it to connect under IR.

9. The last thing you have to do is tell your H/PC to use its IR port to connect to the PC. From the Start menu tap Settings, Communications, PC Connection tab, and Change. Then change the "Connect to desktop computer using:" field to the name of the new IR dedicated Remote Networking connection (in our example, "My IR Connection"). Tap the little window's OK button. Before the tapping OK for the big Communications Properties window, make sure the "Allow connection with desktop computer when H/PC is attached." option is checked. Then tap OK, and the setup for the H/PC side is done.

For Windows CE 2.0, infrared is actually another default connection choice similar to the original 19.2kbps wired connection, so all you need to do is select that as the default connection for the "Connect to computer using:" field mentioned in step 9 above.

Setting up the PC for an infrared connection

When the Microsoft IrDA extensions are properly installed on your PC, you should see an icon named "Infrared" in the PC's Control Panel. To set up the PC for an infrared connection, follow these steps:

1. Double click on the Infrared icon, select the "Options tab" click "Restore Defaults."
2. Check the "Enable infrared communication on:" box, if it is not already checked.
3. Select the appropriate port for that option. (If you're not sure which port that is on your PC, check either with your PC's documentation or with its manufacturer.) Note down the name of

the COM port (i.e., COM1, COM2, etc.) in the "Providing application support on:" section. You'll need that name when you configure the System Device Manager and HPC Explorer (described below).

4. In the Preferences tab, again click "Restore Defaults" and then click "OK" on the bottom of this window.
5. From the Windows 95 Start menu, click on Settings, Control Panel, double-click on the System icon, and select the Device Manager tab.
6. Double-click on "Modem" in the device list and double-click on the COM port whose name you noted down in step 3 above.
7. Select the "Modem" tab and set the Maximum Speed to 115200. (You should see the Infrared COM port whose name you noted down named in the "Port:" field on the same screen.)
8. Select the "Connection" tab and set Data Bits: 8, Parity: none, Stop Bits: 1.
9. Tap on the "Advanced" button and make sure the following options are selected: "Use Flow Control" and "Hardware (RTS/CTS)". Click on OK until you are back to the Windows 95 desktop.
10. Start up HPC Explorer on your PC. If you're using an IR device on your main COM port, you may get a "Port not available"

message — just press "OK". In HPC Explorer, click File, Communications, and select the port whose name you noted down in step 3 above. The PC side of the configuration is now done.

Making the infrared connection.

When you press the "OK" button on this last window, the PC should begin searching for an IR device to connect with. Make sure the red see-through plastic lens on your IR ports is clean. A damp tissue or even a clean finger will usually suffice. But be careful not to scratch the lens.

Line up your H/PC's IR port within range — usually from 4 to 36 inches — of the PC's IR port, turn the H/PC on if it isn't already, and double tap the new PC Link icon on the H/PC's desktop. You should see your H/PC and your PC synchronize, via HPC Explorer. You can also watch progress from the PC side by watching the IR Monitor program's Status tab.

This is a fairly involved process, but once it's done and working, you shouldn't have to repeat the setup. It's quite rewarding to see a Windows CE H/PC and a Windows 95 talking without wires!

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Windows CE information sites

By Tom Gibson

Technical Editor, Handheld PC Magazine

Email: tom_gibson@thaddeus.com Web site: www.thaddeus.com

1997 was a great year for Windows CE! Manufacturers released many new H/PCs. Independent vendors provided modems, memory cards and other hardware accessories for the new Handheld PCs. We saw more software become available for H/PC users – both commercial and freeware/shareware programs. And towards the end of 1997 we saw the release of a new and improved version of Windows CE from Microsoft. Oh yes! We also saw the development of a lot of good web sites for users of Windows CE.

Many of the Windows CE-related sites on the Internet are what I call "information sites." They provide basic information about Windows CE and the H/PCs. The release of Windows CE 2.0 and a number of new H/PCs has left a lot of people scrambling, trying to figure out where they stand with their H/PC and what they should do with it. These information sites will provide them with some of the ammunition they'll need to make decisions in the coming months about upgrades, new units, new software and about Windows CE 2.0.

<http://members.aol.com/pdcchrisd/index.htm>

One of the best information sites to checkout belongs to Chris De Herrera (PDCChrisD@Aol.com), a sysop for America On Line's Pen-based computing forums. Chris' site has a lot of information and Chris has done a great

job of organizing the information into a very useful format. The section for general information on Windows CE version 1.0 includes comparisons of the different units available, a Frequently Asked Questions section, and a list of compatible PCMCIA cards. The Windows CE 2.0 section includes information on the features of each new unit announced and Windows CE 2.0 color screen shots. Chris is collecting Windows CE ISP settings that include all the information you need to setup the dial-up connection on your H/PC. Chris also has a page for comparisons between Windows CE and other PDAs.

You will also want to keep an eye on all of the Windows CE OEMs (Original Equipment Manufacturers) and Microsoft's web sites. With Windows CE 2.0 now here, this is where you can find the latest breaking news on product upgrades and new unit availability.

www.microsoft.com/windowsce/default.asp

Microsoft's Windows CE web site has product announcements, late breaking news, free downloads and links to products from independent vendors.

www.casiohpc.com

Casio's web site is where to find information on the CASSIOPEIA A-10/A-11/A-11+/A-20. At press time there is no current information on the A-20, the new

Windows CE 2.0 offering, but there is information on the upgrade path. Use info@casio-usa.com to email Casio for support or information.

www.compaq.com/products/handhelds/

Compaq's web site is where you will find info for the Compaq PC companion C120/C120+/C140 and PC companion 2, the Windows CE version 2 offering. There is no current information on the new PC companion 2 on Compaq's site. For support and information, see Compaq's website at <http://www.compaq.com/support> or email: support@compaq.com.

<http://mobile.ericsson.se>

Ericsson Mobile Communications is a new player in the Windows CE marketplace with the MC 12. The MC12 works immediately with your Ericsson mobile phone. A built-in software modem enhances battery life and allows you to communicate with speed and efficiency. Synchronizes the phone book of your Ericsson phone with Contacts.

www.hp.com/handheld

Hewlett-Packard's web site is where to find out about the 300/320/360/620LXs. HP was the first OEM to ship a Windows CE 2.0 unit, the 360LX. There is information about the unit on HP's website along with upgrade information.

www.hitachi.com

Hitachi's web site is where you will find information on the Handheld PC. Hitachi makes the SH-3 chips that power the Casio, Compaq, Hewlett-Packard, Hitachi and LG Electronics Handheld PCs, and you can learn about these chips at www.halsp.hitachi.com/windowsce/superh/. Hitachi has not formerly announced their Windows CE 2.0 version machine yet, but it is expected in the 1st quarter of 1998.

<http://www.lge.co.kr>

LG Electronics' web site is where you will find the LG Handheld Phenom. LG Electronics announced at Fall COMDEX that the new generation of Phenom will be shipping by January 1998. To get support from LG Electronics, email techsupport@lge.co.kr.

www.neccomputers.com/products/products.html

NEC's Computer Systems Division web site is where you will find the home of the MobilePro 400/450/700 H/PC. At the current time there is no information on the MobilePro 700, but keep an eye out for it. For support see <http://www.nec-computers.com/> on the web or email tech-support@neccsd.com.

www.velo1.com

Philips Electronics' web site is where information on the VELO 1 and VELO 500 is to be found. You can read about and see the new VELO 500 and also find out about upgrades to the VELO 1 here. For support on your VELO, go to <http://www.velonet.com> on the web or email support@velonet.com.

<http://www.sharp-usa.com>

Sharp Electronics is another new player in the Windows CE market and you can find information on the Mobilon HC-4000/4100/4500 on their web site.

AOL and MSN

America Online and the Microsoft Network provide excellent information support for Windows CE. See the articles on pages 15 and 12 for more on this.

www.inet-1.com/~spamman/wince.htm

This site belongs to Chris Russell (a.k.a., "Spamman"). It's not what I'd call an information site, but it does have Chris' PocketSwap utility. This application automatically changes your desktop wallpaper and allows you to choose which bitmaps you want to automatically change. It will even compress the bitmaps that are not currently being displayed to conserve space.

www.aracnet.com/~cbrown/

Chris Browning owns and runs "Chris's Neck of the Woods." Again, this is not an information site, but on it you'll find GDBPlus — a program to covert HP 200LX note files to a text format readable by Allpen Mobile Database. Chris has a jokes database on his site too, so you can have a chuckle while grabbing GDBPlus.

www.windowsce.co.za/

Ryan's Windows CE Support Page is owned and operated by Ryan van Klaveren. It has some good tips and links to sites around the web for information and downloads. It also contains H/PC-related news and press releases.

www.concentric.net/~awolters/pie/piehome.html

Abby Wolters (awolters@concentric.net) has a site designed for Microsoft Pocket Internet Explorer (MPIE). Her site has links to other MPIE-friendly sites. If you know of any sites that are MPIE friendly, make sure to drop Abby a note so she can check it out and add it to her links.

Until next time, happy browsing and I'll see you OnLine!

NEW For The H/PC

H/PC Products listed here include hardware, software, services, and resources. Prices listed are suggested retail price. Unless otherwise indicated, software products are delivered on floppy disk. Listings do not represent an endorsement by the editors. To announce in our next issue, please send an

email message to editor@thaddeus.com. For live links to the web sites mentioned in this section, visit our web site at www.thaddeus.com, or purchase our PowerCD.

Windows CE 2.0 updates

Many software applications will already be compatible with Windows CE 2.0. A number of companies have specifically announced support for 2.0, including Puma Technologies Intellisync™ and Wright Strategies Form Logic™. Advanced Recognition Technologies, Inc. will have new Windows CE 2.0 Versions of smARTwriter, smARTcontact, smARTcommand, and smARTscribble. Their smART-memo has been discontinued.

Window CE 2.0. A CompactFlash adapter is made available for those H/PCs which need one. At press time this product had not yet been tested in a Handheld PC.

Price: \$179
 Pretec Electronics Corp.
 Phone: 510-440-0535; Fax: 510-440-0534
 Email: cardinfo@pretec.com
 Web: www.pretec.com

Hardware

LAN Adapters

Low Power Ethernet Card for Windows CE 2.0

Socket's "Low Power Ethernet Card (LP-E)" plugs into the H/PC Card slot, giving the user a fast, location-independent way to synchronize with a desktop PC, share networked files, and browse the office intranet or the worldwide web. The LP-E connects to a Windows network via 10Base-T twisted pair cable and transfers data at the rate of 10 megabytes per second — 500 times faster than a serial port. The Battery Friendly™ LP-E extends the battery life of its host H/PC by consuming minimal power.

Price: \$179
 Socket Communications, Inc.
 Phone: 800-552-3300 or 510-744-2700; Fax: 510-744-2727
 E-mail: LPE@socketcom.com
 Web: www.socketcom.com

Pretec Ethernet LAN card with CompactFlash™

Pretec offers a Ethernet LAN card for Windows CE 2.0 in a CompactFlash (TM) format. The card supports both 10BaseT and 10Base2, and works with the NE2000 driver, which is provided in the latest release of

Wireless

Mobile Internet Antenna

The Mobile Internet Antenna delivers the benefits of the AirMedia Live Internet Broadcast Network to users of handheld, notebook, and laptop computers running Windows CE, Windows 95, or Windows NT. The antenna plugs into the handheld and has 1 MB of on-board memory for storing incoming alerts. The antenna also has its own rechargeable NiCAD batteries which in their stand-alone mode can provide more than 10 continuous days of operation. Users can continue to receive their wireless broadcasts even when their handheld PC is turned off. Mobile users can wirelessly receive breaking headline news; news in different categories including business, technology and lifestyle; stock reports; sports scores; weather reports; instant alerts about critical company information newly posted on a corporate intranet or server; and individually-addressed messages delivering email and personal stock portfolio alerts. The antenna weighs 4.5 ounces measuring 3.73, by 2.68, by 0.83 inches.

Price: \$129
 AirMedia, Inc.
 Phone: 800-247-6344; 714-737-5410; Fax: 714-737-5434
 Web: www.airmedia.com

ZAP-IT™

With Wireless Inbox™

DTS Wireless has updated ZAP-IT™ to include Wireless Inbox™ that facilitates email

access. ZAP-IT also now features encryption software by SynData Technologies, Inc., with its wireless Internet email. The DTS Wireless system works over the RAM Mobile Data network which is available in over 10,000 cities in the USA.

DTS Wireless has partnered with Sprynet to create Sprynet™ Wireless Internet service. The service works with a wireless modem and an H/PC. This service lets subscribers wirelessly access their existing Internet email accounts, as well as fax and phone messages.

Price: Varies
 DTS Wireless
 Phone 888-243-8387
 Email: info@dts.net
 Web: www.dtswireless.com

Software

Games

Backgammon

Backgammon for Windows CE can be used to play against the computer, or two players against each other either on the same Handheld PC or on separate H/PCs via the built-in infrared port. The software considers

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H/PC PRODUCTS

the standard backgammon rules and can use double dice on request as well. The separate stones can be moved into the game fields with the pen and the conceivable locations for a drop down are visualized. Available in five languages: German, English, French, Italian, Spanish. Downloadable from www.mobilesoft.com.

Price: Shpg Costs and Tax; US\$ 22.90 (incl. Tax. + S/H)
KRUGER Softwareentwicklung
Email: 100024.1403@compuserve.com
Fax: +49 (211) 213 129

Web: www.kse.de/windowsce
Web: www.mobilesoft.com

Casino Pak I CE

Casino Pak I CE includes all four Zamzow games for Windows CE (WinPoker CE, Blackjack CE, Slot CE, and Keno CE) for a savings of \$15 over separate purchases.

Price: \$30
Zamzow Software Solutions
Phone: 888-203-9363; Fax: 602-837-5714
Email: zamzow@ix.netcom.com
Download from company website or Mobilesoft.

Web: www.betterbytes.com
Web: www.mobilesoft.com

Comet Defense!

Comet Defense! is an arcade-style graphics and action game involving protecting cities from comet showers. It can be played with sound effects or in a silent mode. Users can play at different levels of difficulty. A free trial version may be downloaded from the company Website.

Price: \$9.95
Bytes occupied on H/PC: xx
Golem Software
Email: webmaster@golemsoft.com
Web: www.golemsoft.com

Drop 4

Drop 4 for Windows CE is a simple to learn board game. Players attempt to connect four in a row horizontally, vertically, or diagonally. Compete against a friend or the computer. Plays at three different levels. Full help system is provided.

Price: \$4.95
Bytes occupied on H/PC: 24K on SH3, 28K on MIPS
Golem Software
Email: webmaster@golemsoft.com
Web: www.golemsoft.com

GameBreak

GameBreak is a subset of three games from GameBag One: Step Up, Shuffle and Shift Left. Free 10-day trial available via email or diskette.

Price: \$19.95 (regular or email shipping included).
Bytes occupied on H/PC: 180K
Ilium Software
Phone: 888-632-5388 / 313-973-9388
Fax: 313-207-9358
Email: info@iliumsoft.com
Download from company or Mobilesoft.

Web: www.iliumsoft.com
Web: www.mobilesoft.com

GameTrio

GameTrio is a subset of three games from GameBag One: Kings' Corners, Dots and Hands Down. Free 10-day trial available via email or diskette.

Price: \$19.95 (regular or email shipping included).
Bytes occupied on H/PC: 180K
Ilium Software
Phone: 888-632-5388 / 313-973-9388
Fax: (313) 207-9358
Email: info@iliumsoft.com
Download from company or Mobilesoft.

Web: www.iliumsoft.com
Web: www.mobilesoft.com

Pocket CW

Pocket CW is a crossword program for Windows CE. Fifty puzzles are available in a package that includes everything users need to solve crosswords on their H/PC. The first puzzle package by Satori Publishing provides puzzles which are 13x13, and are classified as difficult. Help files are included. A free trial version may be downloaded from the company Website.

Price: \$14.95 (includes the first package of fifty puzzles)
Bytes occupied on H/PC: 24K on SH3, 28K on MIPS
Golem Software
Email: webmaster@golemsoft.com
Web: www.golemsoft.com

ZSS Keno CE

ZSS Keno CE duplicates the popular Casino Keno video game. Features include the ability to choose up to 10 numbers, an auto-play option, and sounds. Numbers and buttons are large.

Price: \$10
Bytes occupied on HPC: 35Kb; 80Kb RAM to run.
Zamzow Software Solutions
Phone: 888-203-9363; Fax: 602-837-5714

Email: zamzow@ix.netcom.com
Download from company or Mobilesoft.
Web: www.betterbytes.com
Web: www.mobilesoft.com

Miscellaneous

Digital Dragon

Based upon the I Ching, Book of Changes, Digital Dragon for the H/PC is a new interface to this classic Chinese book. The wise sayings are insightful and revealing. This divination software uses the 'wishing pool' interface to display the results of the coin tosses. Simply throw six coins into the pool and receive the wisdom of the sages. Digital Dragon brings the original divination technology back for your entertainment in a style suitable for the modern world.

Price: \$9.99
Disk space size: 220K
Web: www.cdcdesign.com/product.html

eWallet

eWallet stores information for identification, credit cards, calling cards, account numbers, passwords, PINs, insurance, etc. encrypted for security. Free 30-day trial available via email or diskette.

Price: \$29.95 (regular or email shipping included).
Bytes occupied on H/PC: 160K
Ilium Software
Phone: 888-632-5388 / 313-973-9388
Fax: 313-207-9358
Email: info@iliumsoft.com
Web: <http://www.iliumsoft.com>

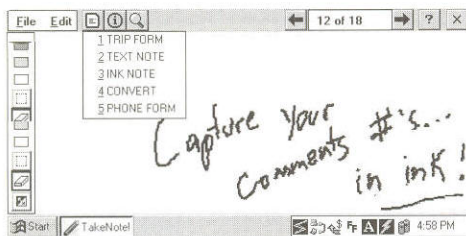
Pocket Survey™ 2.0

Pocket Survey from AgriLogic is an agricultural application using the Global Positioning Satellite (GPS). It can link to a GPS* receiver through its RS232 compatible COM port on the H/PC to read the GPS data and locate the position of the system in real time. The GPS position is then logged into Pocket Survey files. Pocket Survey with a Windows CE allows users to log data in a variety of applications because of its ability to process GPS information.

The program can be used to record data for field boundary creation, soil sampling and crop scouting. The user can generate maps in the field to investigate relationships between drainage, compaction, cultural practice, fertility, or other factors. Pocket Survey consists of

TakeNote!

intelligent notepad with plugin stationery



Features

- Ink notes, text
- Optional stationery
- Includes Travel form, conversions and more.
- Includes 3 bonus utilities: NewContact, NewTask and LaunchBar

The next time you want to quickly capture an idea, a friend's phone number, or confirm whether 5000 lira is a small fortune then TakeNote! TakeNote! transforms your HPC into an electronic piece of paper that supports stationery such as Ink sketches, text notes, conversions and more.

Fiscal Pro

forms based financial problem solver

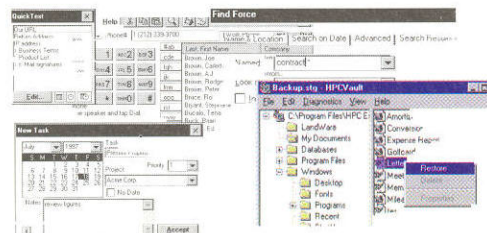
Features

- Simple form filling metaphor
- Amortizations
- TVM calculations.
- Investment analysis
- Unit/Currency conversions
- Single tap calculations

Fiscal Pro employs a "form filling" metaphor to provide you with a rich problem solving environment that is unparalleled in its ease of use, power and flexibility. Just enter the known quantities and tap to solve for the unknown value. Ten different calculation forms are provided.

Productivity Pac

powerful suite of add-on utilities



Features

- Search by filename, date or document text
- Recover a file from backups
- Fast and flexible dialling
- Rapid entry of glossary text or date/time stamp
- Quickly add a new task
- Quickly add a new contact
- One tap application launch

Powerful productivity add-ons for your Windows CE device. You'll now be able to search by filename, date or text with FindForce, recover a file from your desktop's backup image, dial the phone, enter a new task/contact with ease, reduce typing through the use of quick access glossary and launch any file from a button in the status area.

AllPen Mobile Forms Database

capture information on the road

Features

- Create databases on the HPC
- Multiple field types
- Fast searching and sorting
- Export as a tab or comma delimited ASCII file.

This powerful forms based data collection solution allows you to capture information via pen and keyboard. Default responses can be entered so you save time when entering repetitive data. Field types include text, note, number, pop-up menus, radio buttons, and checkboxes.

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Software for Terra Firma

HPC Solutions in Hand



Pocket Finance

track your finances anywhere, anytime

Features

- Rapid data entry
- Supports Multiple Accounts
- Desktop companion application to upload data.
- Pop-ups for description, category and subcategory
- Font control.
- Supports QIF.

Capture your financial transactions on the road. Pocket Finance lets you easily enter check, ATM, credit card activity and then upload it into MS Money or Quicken. Supports multiple accounts, category pop-ups that remember your entries, auto check numbering and more.

Financial Consultant

financial problem solver

Features

- TVM Calculations
- Keystroke depreciation
- Investment analysis using NPV and IRR
- 13 percentage calculations
- Date calculations

Equips your HPC with a powerful business tool. This calculator has been designed specifically for real estate, retailing and business professionals who need to make fundamental financial decisions quickly and accurately.

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Ph (201) 261-7944, fax (201) 261-7949, sales (800) 526-3977, info@landware.com

H/PC PRODUCTS

two parts, the Pocket Survey software that resides in the Handheld Personal Computer (H/PC) and a desktop companion. Download Pocket Survey from website.

Price: \$295

Bytes occupied on HPC: 304 Kb

AgriLogic

Phone: 1-800-444-8214 or 630-789-7186;

Fax 630-789-7174

Email: info@agrilogic.com

Web: www.agrilogic.com/html/pocket_survey.html

Project Gutenberg on CD-ROM

Project Gutenberg is a collection of over 850 E-texts of the world's most commonly used and referenced works of literature. This version contains all files collected in 1991 through 1997. The disk is updated about every six months to include recently transcribed works.

Price: \$39.95 (Subscription \$24.95) (Through Oct 97)

Walnut Creek CDROM

Phone: 800-786-9907 or 510-674-0783; Fax: 510-674-0821

Email: orders@cdrom.com

Website: www.cdrom.com

Shareware/Freeware

Communication

Boomeran

Boomeran for Windows CE is a professional communication software that runs on a Handheld PC equipped with any Modem card. Boomeran supports serial communication, and has a variety of user interfaces. Sales system is available.

Type: Shareware; Price: \$20

Email: hpc@ctk.co.kr

Web: www.ctk.co.kr/ctkhome/hpc/boomeran

Games

JIMMY's Fun Pack 1

JIMMY's Fun Pack 1 is four games in one for Windows CE 2.0, Spy, Snake, SokoBox, and Planetoid.

Type: Shareware; Price: \$32

Email: jimmy@jimmy.com

Web: www.jimmy.com

Planetoid 1.0 – The Asteroid-like game for Windows CE

Type: Free for registered users of JimmyARK

(Jimmy ARK is \$24)

Email: jimmy@jimmy.com

Web: www.jimmy.com

Text Viewer

Bookworm

Bookworm v1.1 is an easy-to-use text file reader that lets you take your books with you on your H/PC, wherever you go. View ASCII text documents and electronic books (Project Gutenberg E-texts). Page up or down easily, or set Bookworm to scroll continuously through your document at the speed you select. Set bookmarks, use Location Slider, or Find feature to go to the desired section of the text. A demo version (fully functional except it runs for only 10 minutes at a time) is available in the HPHAND forum of Compuserve.

Type: Shareware

Price \$29.95

ICL Software Technologies Ltd

Phone: +44 (0)161 435 1111; Fax +44 (0)161 435 1112

Email: info@iclsofttech.com

Web: www.iclsofttech.com/centrivex

Utility

Database Backup Utility

Use Database Backup Utility version 1.01 to back up Windows CE databases directly to a

file on the HP/C or storage card. Backups can contain one or more Databases, and users can selectively restore one or more

Databases from a backup. Compact Databases by doing a backup and then a restore. This program protects H/PC data while away from a desktop computer. A demo is available.

Type: Shareware; Price: \$20

John Schettino

schettino@writeme.com

Web: members.aol.com/pdcjohns/dbbackup.html

KeyMapPro (version 1.4 update)

KeyMapPro update adds Swedish keyboard layout, fixes compatibility problem with other software hotkey, and fixes sending control code through Terminal.

Type: Shareware; free for registered users of KeyMapPro

(KeyMapPro is \$24)

Email: jimmy@jimmy.com

Web: www.jimmy.com

KeyMapPro (version 1.32 update)

KeyMapPro fixed all problems reported by users. New features include multiple keyboard layouts for: Danish, French, German, Italian, Portuguese, Spanish, and (Custom).

Type: Shareware; free for registered users of

KeyMapPro (KeyMapPro is \$24)

Email: jimmy@jimmy.com

Web: www.jimmy.com

Visual CE™

Visual Development Environment for Windows CE

Build Windows® CE forms in minutes !!!

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—SYWARE—

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(1-888-2-438-387)

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ZAP-IT™

PRODUCT REVIEWS

CONNECTIVITY

Microsoft Expedia Pocket Streets98

By David M. Dolan

Microsoft Expedia Pocket Streets98 is the first street-map program specifically designed for H/PC Windows CE handheld computers and is available only as part of the full desktop Microsoft Expedia Streets98 package. Although interest here is with the pocket program, suffice it to say that the desktop package is an excellent street mapper and compares with, and in some cases is superior to competing packages. Those primarily interested in the Pocket version will want to setup and familiarize themselves with the desktop version first.

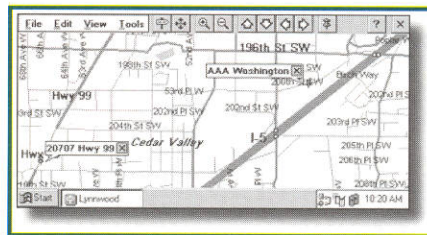
Installation and Use

With your H/PC connected to your desktop and H/PC Explorer running, double-click on SETUP.EXE in the HPC directory of the Expedia Streets98 CD ROM and follow the online instructions. If you are careful, setup is relatively straightforward.

To create a Pocket Streets98 map, you first select a map in the desktop program, then draw a square around a selected area and save it in a custom-named map-file in a directory of your choice on the hard disk. Then, with H/PC Explorer running, use Windows95 Explorer to drag and drop the map file you've just

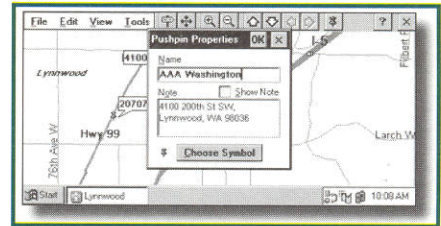
created into a folder in the H/PC Explorer window. When the map is created, you are informed of the approximate size it will be. Microsoft advises that individual map sizes be kept below 600k which I've found to be the size of a medium-size city.

Start Pocket Streets98 on your H/PC and select File, Open (or tap on the Open icon) and you are presented with a list of the map files you have created from the desktop and transferred to the H/PC. Tap on the name of the desired map and it will appear on your display.



Pocket Streets98 lets you select a map from Expedia Streets98, transfer it to your H/PC and take it with you to help you find where you're going.

You can also create your own Pushpin Files. A Pushpin icon may be placed at any location on your map together with a name and brief description. These entries are stored in a Pushpin File that may be easily recalled and browsed. Simply click on Pushpin Explorer in the Tools menu and the Pushpin names you have entered will be displayed; select any name and tap on Properties to show its brief description or you may double-click the selected name to open the area of the map containing its Pushpin icon. Alternatively, you can tap on any Pushpin icon on the map to display its name; a double-click on the name brings up the description in a Pushpin Properties window.


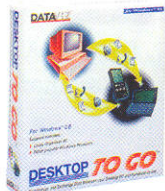


The Pushpin feature lets you tag important places and enter a brief description about that place, including its address, phone number, etc.


Pocket Streets98 is a full-featured street mapper providing comparable features, and more complete maps than Microsoft's own desktop Automap Streets of just two years ago. Central to the program is the ability to display the exact location of virtually any street address in the map that you have imported from the desktop version. You can tap on any street for its name as well as the street number at that location. Magnifying glass icons provide for zooming in and out at will.

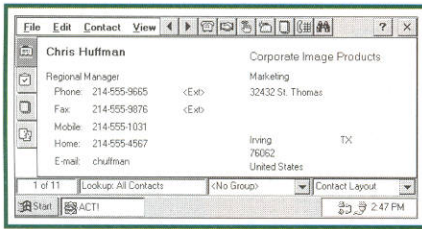
You can also use Pocket Streets98's Find feature to look up the main points of interest and go to them on the map.

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Use Pocket Streets98's Find feature to locate places on your map.

Pocket Streets98 has limited but adequate ability to customize map views. A light or dark background may be selected, the light background being far preferable on my HP 320LX. Also, a full or less detailed map may be displayed.

Likes, Dislikes, Recommendations

Limitations of Expedia Pocket Streets98 have more to do with limits of the hardware and available memory. For instance, maps of any sizable urban area will eat up 500k memory or more; a PC memory card is recommended to store maps. Also, an H/PC with a larger screen such as the HP 320LX will show better map detail. My only real criticism is that I would liked to have seen the ability to setup the program and export maps directly from the desktop program through H/PC Explorer to the H/PC.

Otherwise, I like virtually everything else about the program. I have purchased several desktop street mappers over the last two years and never would have thought that such a well-designed, full-featured version would be available for handhelds in a first release. If that sounds extreme, I would go so far as to say that this program might give a frequent traveler reason alone to buy an H/PC handheld!

See David Dolan bio on page 44.

Microsoft Expedia Streets98 — \$49.99

Microsoft Expedia Streets98 Deluxe

(includes Yellow Pages USA) — \$69.99

(Both of these desktop versions come with Pocket Streets98 at no extra charge.) The website has a full-running Pocket Streets98 Demo with sample maps for download.

CONTACT:

Microsoft Corporation: Phone 800-426-9400; Canada: 800-563-9048; Website: www.microsoft.com/expedia/streets/pocket.htm

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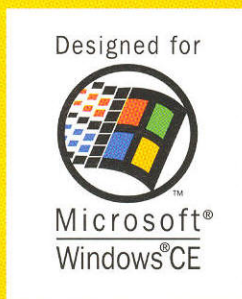
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Turn Your H/PC Into A POWER CALCULATOR

Windows CE comes with a basic calculator that is useful for simple calculations, but insufficient for more advance personal, business, and scientific needs. Fortunately, there have been a number of excellent calculator and financial programs developed by independent vendors to meet this need. This article looks at four of these programs: CoolCalc, Pocket Finance, PocketBiz, and Proficiency. Our thanks go to the reviewers for sharing their thoughts with us.

CoolCalc

Applian Software

Review by Craig Peacock

CoolCalc is powerful, easy to use and customize calculator that lets you do personal, business, or scientific calculations on the H/PC. CoolCalc has macro capability and comes with its own programming language. Even better, the program lets you customise its calculator and formula screens to create your

own personal calculator.

You can move calculator buttons around, assign them to do various functions, and change the size and appearance of individual buttons. You can create and edit your own macros (sequences of calculator functions), and assign them to buttons as well. CoolCalc comes with templates to create your own formula screens, too. By pressing various on-screen buttons, you can have a business or scientific calculator, or a variety of "formula screens" to do more complex things such as Time Value of Money calculations and metric conversions.

Reminiscent of a web browser, each calcu-

lator has a Home and Back button, which means you're never more than a tap away from the Main Menu. I liked the way the calculator screens displayed information and the fact that you could customise the function of the buttons to suit your needs. All these things, and the fact that it installs completely in less than 250k makes CoolCalc a winner in my book.

CoolCalc: CoolCalc is for H/PC users who need a powerful, customizable calculator. \$NA
CONTACT: Applian Software, Phone: 415-831-1499; Fax: 415-668-6668; Web site: www.applian.com

Proficiency

MVA Software

Review By Craig Peacock

Proficiency is an RPN calculator providing business, financial, statistical, scientific, engineering and computer science functionality to H/PC users. It emulates the Hewlett-Packard HP-12C financial calculator, most of the HP-15C engineering/scientific calculator and portions of the HP-16C computer science calculator. Proficiency comes with an extensive library of pre-programmed functions, providing users with solutions to the majority of day-to-day calculation needs.

A lot of care and attention has been paid to small details often overlooked on similar products. Proficiency is easy to use, and has a comprehensive, but uncluttered display area. Proficiency's display has been optimised for the H/PC's small screen and come in two versions — one for H/PCs with a 480 by 240 pixel display (Casio, Compaq, LG, Hitachi, NEC, and Philips) and one for the 640 by 240 display of the Hewlett-Packard 300/320LX Palmtop PC.

As mentioned above, Proficiency is an RPN calculator. RPN, or

"Reverse Polish Notation," is a variation on a parentheses-free form mathematical logic. The other popular notation is Algebraic. To add the number's 1 and 2 in Algebraic Notation, you press 1, then +, then 2, and finally =. To perform the same calculation on an RPN calculator you press 1, Enter, 2, and finally +. Many popular business and scientific calculators from Hewlett-Packard have used RPN. Proficiency always displays the RPN Stack, letting you see the intermediate processing.

Proficiency provides you two modes of operation - use the stylus to tap the calculator keys directly on the display, or use the H/PC's keyboard. All functions are available either way. Tabbed pages organize functions into logical groups. You can jump between tabs as necessary to accomplish your calculations.

Proficiency comes with lots of features, is well organized, and optimized for the size of your H/PC. If you are looking for a financial product to do standard, business, or scientific calculations, you may not have to look much further than Proficiency.

Craig has been a handheld, palmtop and PDA user for over five years. Visit his H/PC web site at www.craigtech.co.uk, or email Craig at craig@craigtech.co.uk.

Proficiency: If you are familiar with and use RPN, Proficiency provides business, financial, statistical, scientific, engineering and computer science functionality to the H/PC. Proficiency: \$49 (US); **CONTACT:** MVA Software, Inc., Phone: 714-970-9147; Fax: 714-692-9189; Email: info@mvasoftware.com Web: www.mvasoftware.com

Pocket BizCalc

Odyssey Computing

Review By Michael J. Posner

The calculator included with Windows CE is a basic four-function calculator with memory

and a pseudo paper tape display. This is sufficient for many users, but if you need to do scientific or business calculating, a more advanced calculator is a must. Odyssey Computing provides such a calculator with Pocket BizCalc, a Windows CE and Windows 95 calculator program that emulates the popular HP-12C calculator.

Installation is a two-step process. The software is installed from a single floppy disk onto the user's hard drive and then transferred to the H/PC. This installation process leaves about 930Kb on the users desktop PC hard drive and a single 214Kb file on the H/PC. Once installed on the H/PC, the files on the desktop can be removed.

Installation automatically creates an icon for the program. Tap the icon and the program launches in eight to ten seconds (on my HP 320LX). Once open, the program fills the entire screen (is scaled to fit my 320LX's larger screen).

The top menu bar includes five pull-down menus (File, Edit, View, Tape, and Help). To the right of these are eight tool bar icons (new, open file, save, copy, paste, and three icons for controlling the tape display). The left side of the screen is taken up with numerous buttons to support all of the built-in functions of the 12C. This includes separate buttons for functions invoked by a "prefix key" on the 12C. Since the H/PC doesn't have a prefix key, there are over 100 buttons to invoke all the functions. This may be a bit confusing to some users; especially those used to the layout of the 12C.

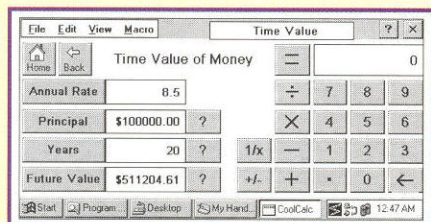
All of the HP 12C functions are included, as well as some extra features. The 12C supports only 99 programming steps, BizCalc users can create and save programs with up to 999 steps. The 12C's one-line display is replaced with an eight-line tape register. The tape register allows for either tape, memory, or register views. In addition to all of the built-in HP 12C functions,

ADD IT UP!

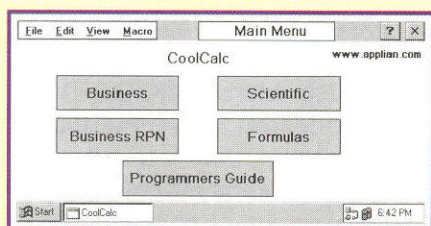
HANDHELD PC

4 Power Calculator Programs for the H/PC Show Their Stuff...

CoolCalc

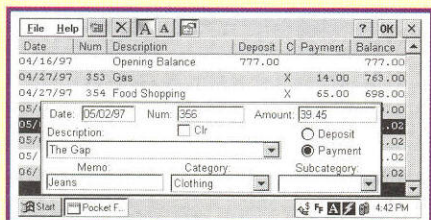


CoolCalc lets you create specialized formula screens to accomplish specific calculations. Shown above is a screen to calculate the Time Value of Money.



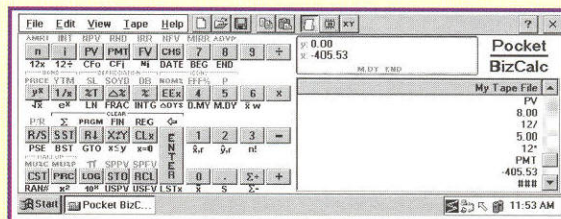
CoolCalc's Main Menu lets you select a business calculator, a scientific calculator, special formulas you have configured, or the Programmers Guide.

Pocket Finance



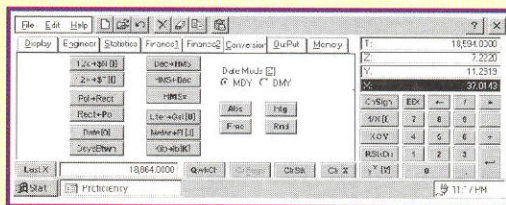
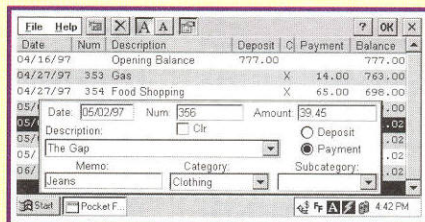
Pocket Finance's main register (background) with edit window open to an individual item.

Pocket BizCalc



The Pocket BizCalc displayed on the HP 320LX. The opening screen displays the number pad in the middle of the screen, business and scientific functions to the left, and a "tape" to the right documenting the steps you've executed in the calculation.

Proficiency



Proficiency's Conversion screen is shown above. The 480 pixel wide display on top, the 640 pixel wide display on the bottom.

Pocket BizCalc also includes several functions that are available on the 12C, but require multiple keystrokes to accomplish. This includes several business functions and a key to calculate pi.

The built-in help function provides short summaries of each key's function, with examples for many. It covers most topics sufficiently, but there's no substitute for the manual (and possible a primer on the HP 12C for advanced users).

Pocket BizCalc retails for \$39.95, which is a lot less expensive than competing programs or a new HP 12C. Sluggish speed and a large

storage footprint (over 10% of a two Mb H/PC) are its only drawbacks.

Michael is a Board Certified Real Estate Attorney with a strong interest in handheld computing.

Pocket BizCalc: Pocket BizCalc for Windows CE: \$39.95; Pocket BizCalc & BizCalc for Windows 95/NT (Bundle): \$49.95
CONTACT: Odyssey Computing, Inc., Phone: 800-965-7224 or 619-675-3660; Fax: 619-675-1130; Email: sales@odysseyinc.com; Web site: www.odysseyinc.com

Pocket Finance

LandWare Software

Review By Randolph Sly

I've spent years with PDA's and I have discovered that I use some applications a lot, some a little, and some almost never. Pocket Finance falls into the "used a little" category — an application that I don't use often, but rely on to track important information and make readily available when I need it. Pocket Quicken

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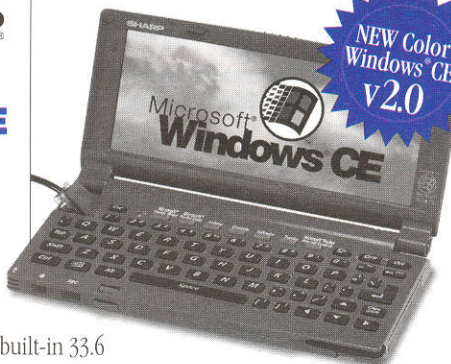
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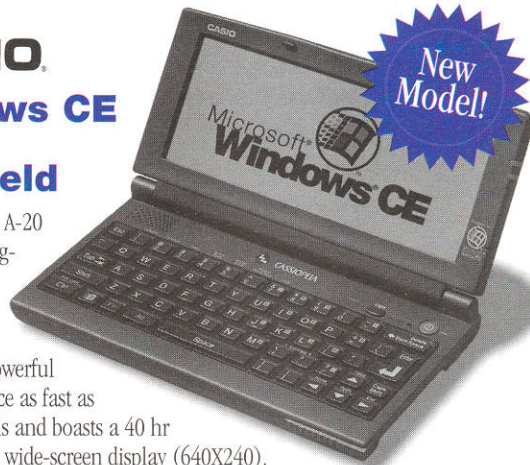
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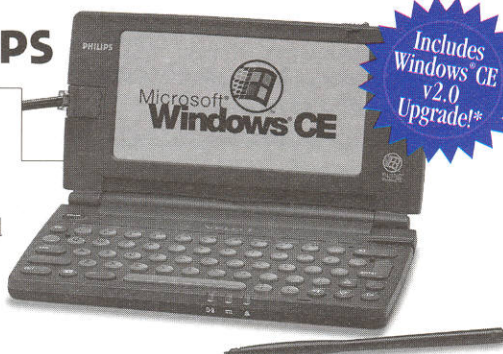
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HP320LX 4MB H/PC with docking cradle, AC adapter & PC cable Our Price: **\$599⁹⁵**

*With manufacturer's mail-in coupon.



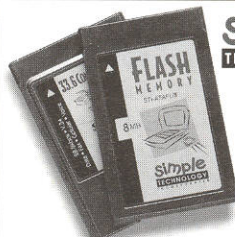
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Protect your HPC from bumps and scratches. Features storage pockets for cards and zippered enclosure.

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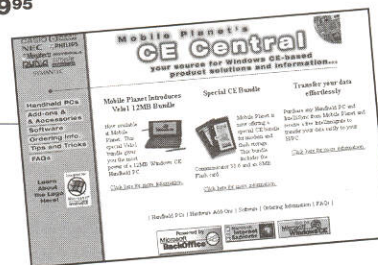
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More Calculator Programs!

The programs discussed here are only a few of many good financial and calculator programs available for H/PC users. Others mentioned in our Products section include:

Financial Consultant

A financial calculator that supports time and money calculations, investment analysis, depreciation, retail-style percentages and other calculations.

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Fiscal Pro

Financial Problem Solver

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Price: \$39.95; Special bundle \$49.95

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LifePlan

Investor, Personal, and Professional Editions contain customizable Pocket Excel templates to help individuals and professionals make financial and investment decisions.

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ALTO Financial Software; Web: www.mobilesoft.com

Pocket Convert

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Users type in an equation and enter values for all but one of the variables.

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iambic software; Phone: 800-730-5370; Fax: 408-882-0399; Email: info@iambic.com; Web: www.iambic.com

was one such application on my old HP 200LX. I always had a basic financial report available whenever I needed it. When I began using my H/PC, Quicken was missed immediately. While checking out H/PC software from independent developers, I came across Pocket Finance, a program that gave me most of what I missed from Quicken.

Developed by Any Ware Consulting and first distributed with the name Personal ATM, Pocket Finance is now distributed by LandWare. Pocket Finance is a basic but powerful check register. In fact, when you open up PF, it looks a great deal like a standard check register on the screen.

Financial data (checks, deposits, ATM withdrawals) is entered either on the register itself for basic information or by opening an edit window for greater detail. For each record you can enter a date, check number, description, amount of transaction, and specify it as either a deposit or payment. A balance forward is automatically computed. The Edit window lets you enter further details about the transaction, including a pop-up list for the cate-

gory and subcategory of the transaction and a memo line for additional notes. Finally, a check box is available to indicate whether or not the check has cleared.

The export module of the application, accessed from the task bar, allows you to upload Pocket Finance data to a PC running the desktop Pocket Finance application. From there it can be transferred to a desktop version of Quicken using Quicken Interchange Format (QIF). The desktop Pocket Finance can also transfer Quicken files into Pocket Finance on the H/PC.

At first, I had a hard time using the transaction details window. I kept re-entering information, waiting for Pocket Finance to post the information in the register view and disappear. Later, I found several multiple entries on the register behind the transaction window. I realized that the register and transaction details windows are active all the time. Clicking on the transaction button simply displays or hides it. All I had to do was enter the data and it was there.

Another thing that gave me

problems was the font size. I found Pocket Finance's screen very hard to read in the smaller font mode (which is the permanent default). I changed it to the larger font option, but found the readability only marginally acceptable. I would love to be able to change the font to an even larger size and different font style.

More software of this type will probably appear after Windows CE 2.0 is released, but Pocket Finance is a good start. I don't miss Quicken as much with this application on my H/PC. I hope that its developers will continue to improve and strengthened this program as the Windows CE environment blossom

Randy Sly is Archbishop of the Eastern and Central Province of the International Communion of the Charismatic Episcopal Church. He, his wife Sandy, and their three children: Dena, Debbie and David live in Olathe, Kansas.

Pocket Finance: Pocket Finance is a simple check register for H/PC users who wish to keep track of financial transactions on their H/PC. Pocket Finance: \$39.95 (U.S.) **CONTACT:** LandWare; Phone: 800-526-3977; Email: info@landware.com; Web site: www.landware.com

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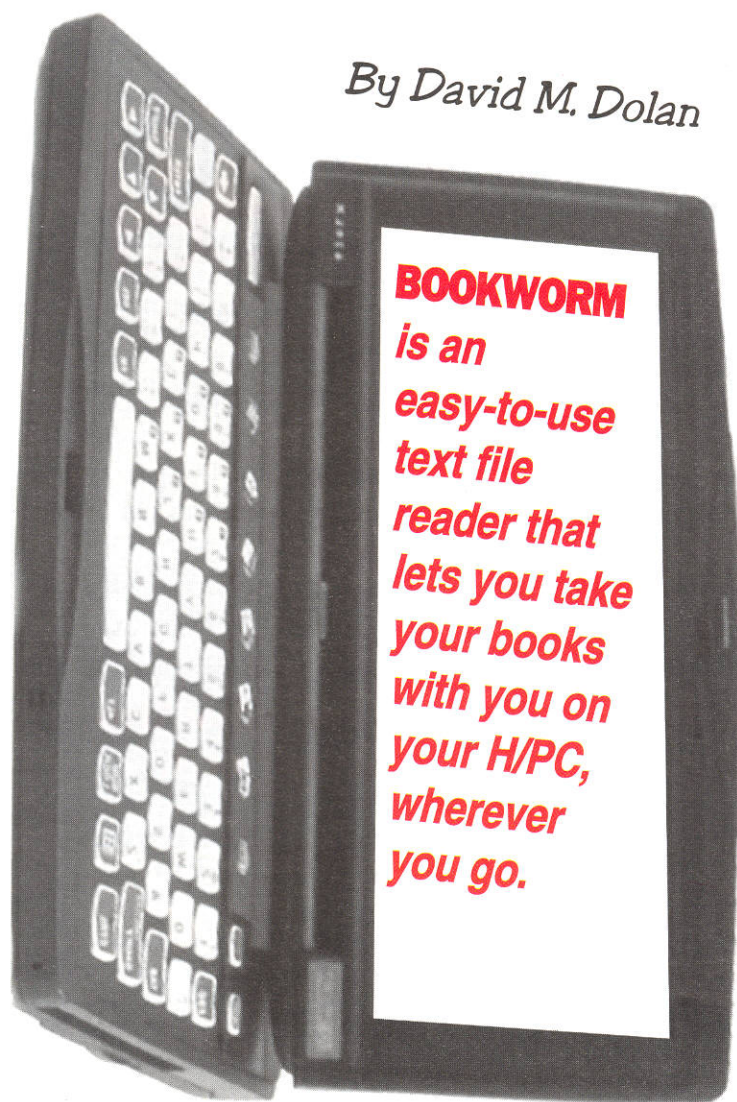
intel



Thaddeus Computing inc.

Curling up with a good book ...and the H/PC

By David M. Dolan



More and more books are becoming available in "electronic" format (see Project Gutenberg sidebar, page 45). The simplest of these are no more than ASCII text files, easy to load on a computer and read in a word processor. But most word processors are designed for spell checking, text editing and formatting. If all you want to do is view text, they have all sorts of features you don't need, and lack a few that you do need.

A dedicated text viewer gives you immediate access to your "electronic novel," using the largest screen area possible with a minimum of screen distractions. Furthermore, most text readers allow you to switch easily to a vertical reader mode, which provides more viewable text per page (because the blank lines used as paragraph separators take less space) and, for many, is easier on the eyes.

Handheld PCs, with their hi-resolution backlit screens, long battery life, and portability, have the ideal hardware for a useful book viewer. Now, with the Bookworm text viewer

About The Author

David M. Dolan is an outpatient center Anesthesiologist in Rancho Mirage, California. However, since purchasing one of the first Apple IIs in 1977, much of his free time is spent on computer-related activities. In the 1980s, he programmed and marketed one of the first microcomputer-based medical accounts-receivables packages and wrote a number of articles for some of the earliest computer magazines.

by Chris Marriot, they also have the software.

Easy to install and use

Bookworm comes in the form of an installer program, BOOKWORM.EXE. First, copy it to your Windows 95 PC and run it from the Start Menu or Windows Explorer. It creates a setup directory with the necessary files on your Windows 95 computer. Next, connect your H/PC to your Windows 95 PC and run HPC Explorer. Finally, double-click on SETUP.EXE in the newly-created setup directory on your desktop PC; this installs the program in the H/PC Windows folder and creates a Bookworm shortcut icon on the H/PC desktop.

Double click on the Bookworm shortcut on your H/PC desktop, tap on File, Open, and select the document you want to view. (The author warns against trying to open anything other than a plain-text file, but, for interest sake, I tried opening a Pocket Word document file and a binary program file, and the program didn't hang.)

The text may be viewed horizontally or vertically using any font available on the H/PC. The text may be scrolled continuously at a speed you select from the Tools Menu. You can also "turn pages" using the <PgUp> or <PgDn> keys. Accessing the <PgUp> and <PgDn> functions requires pressing a key combination on most handheld PCs. (For example, PageUp on the HP 320LX is accessed by pressing <ALT> <UpArrow>). The author thoughtfully provides alternate keys for these functions: <Enter> substitutes for PgDn and <Tab> for PgUp.

The Bookmarks selection in the Tools Menu lets you place any number of bookmarks in the text, each with its own descriptive name. The Goto selection in the View Menu provides a Location Slider that can place you anywhere sequentially in the text. The Find selection, also in

PROJECT GUTENBERG "ETEXT"

After a number of years, literature becomes copyright-free. That means that text file versions of Edgar Allen Poe's poetry, the Bhagavad Gita, or Moby Dick can be created without violating copyright law. In addition, a lot of current fiction and non-fiction is released copyright-free.

Project Gutenberg has been around for many years, creating "ETEXT" ASCII text file versions of copyright-free material and posting them on the Internet. The Project's goal is to encourage the creation and unlimited distribution of some 10,000 English ETEXTs by the end of 2001. It is also encouraging the development of libraries of ETEXTs in French, German, Latin and other languages.

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You can also find the Project Gutenberg ETEXTs on most major online services, BBS's, thousands of non-commercial sites and via satellite. They are also available on diskettes through the mail.

America On Line – AOL's ETEXT library can be accessed through their PDA Forum (keyword PDA) or directly from keyword ETEXT (the ETEXT area, called "Palmtop Paperbacks," is one of PDA's resource centers). According to an AOL forum leader, some of their texts aren't even available on the Web, as one of our Newton Book makers got permission from copyright holders to post them on AOL as Newton Books and ETEXTs.

CompuServe — Has a Gutenberg collection that you can get to by typing GO GUTENBERG.

Internet — ETEXT files are listed in most Gopher systems and FTP archives. The author of the Bookworm review reports that <http://www.promo.net/pg> and <ftp.cdrom.com/.21/gutenberg> are two sites he finds useful.

Project Gutenberg on CD-ROM (see page 32, products listing)

How to contact Project Gutenberg

For complete information on the project, contact: Dr. Michael S. Hart, Professor of Electronic Text, Executive Director of Project Gutenberg ETEXT, Illinois Benedictine College, Lisle, IL 60532, Internet IDs: hart@uiucvmd.bitnet and hart@vmd.cso.uiuc.edu.

For a listing of some of Project Gutenberg's titles, please see sidebar on next page.

the View Menu, allows a search for whole words or segments within words on an either case-specific or ignore-case basis.

Likes, Dislikes, Recommendations

Bookworm provides a simple, clean, and intuitive user interface.

Anyone should be able to use it in minutes. I recommend that you use a memory card to hold your text files; the average novel occupies 400k of memory or more. The few suggestions I have for improving the program in no way detract from my high opinion of the quality and usefulness

of the program. The instructions provided in a README file could easily be incorporated in the online Help feature, which, at present, consists only of the Keyboard Commands. In the vertical viewing mode, I would like to see more intuitive keys used for the up and down scrolling. When viewing text vertically; <Enter> is at the top of the text but is used to scroll down. Finally, it would save precious main memory if there was an option to setup the program on a memory card. On the whole, however, make no mistake: this is an excellent, must-have program.

Some of the ETEXT titles available from Project Gutenberg

For instructions on ordering these titles, please see "Gutenberg" sidebar on previous page.

\$30,000 Bequest and Other Stories	Legend of Sleepy Hollow
A Christmas Carol	Les Miserables
A Child's Garden of Verses	Lost Continent
A Little Princess	Maria, or the Wrongs of Woman
A Connecticut Yankee	Marvelous Land of Oz
A Tramp Abroad	Oedipus Trilogy
Adventures of Tom Sawyer	Paradise Lost (Raben)
Aesop's Fables	Paradise Regained
Aladdin and the Wonderful Lamp	Peter Pan
Alexander's Bridge	Pilgrim's Progress
Alice In Wonderland	Plato's Republic
Anne of Avonlea	Princess of Mars
Anne of Green Gables	Prisoner of Zenda
Around the World in 80 Days	Red Badge of Courage
Art of War	Reference and Technical Books
Autobiography of Benjamin Franklin	Return of Sherlock Holmes
Awakening and Selected Short Stories	Roget's Thesaurus (Gutenberg)
Beethoven's Fifth Symphony	Son of Tarzan
Bible, King James Version	Square Root of 2
CIA World Factbook '93	Tale of Two Cities
Civil Disobedience	Tarzan stories
Classic Literary Works	The Arabian Nights
Collected Articles of Frederick Douglass	The Scarlet Letter
Common Sense	The Tragedy of Pudd'nhead Wilson
Communist Manifesto	The Monster Men
Descartes' Reason Discourse	The Secret Garden
Far From the Madding Crowd	The Adventures of Huckleberry Finn
FDR's First Inaugural Speech	Those of the d'Urbervilles
Flatland	Thuvia, Maid of Mars
Frankenstein	Time Machine
Frederick Douglass Narrative	Tom Sawyer Abroad
From the Earth to the Moon	Tom Sawyer, Detective
George Sand	Treasure Island
Gods of Mars	US Census Data
Hacker's Dictionary of Computer Jargon	War of the Worlds
Hitchhiker's Guide to the Internet	Wonderful Wizard of Oz
House of the Seven Gables	

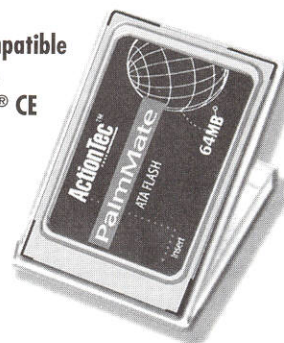
Bookworm v1.1: Shareware; price \$29.95. A demo version (fully functional except it runs for only 10 minutes at a time) is available in the HPHAND forum of Compuserve.

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Handheld Wisdom

Using the Handheld PC and Windows CE operating system to increase your personal effectiveness

By Rich Hall

Finding phone numbers when you need them

There is a simple practice that I guarantee will pay off handsomely. Whenever you make a new contact, find yourself calling a new number or writing a new address, ALWAYS enter that information into your Handheld PC Contacts list.

If you think you may forget the contact, enter some key words in the contact's Note field. Use any identifying characteristics: tall, mustache, met in New York, publisher's conference, interested in coin collecting. Take the minute or two required to enter the name, address, phone number, and key words.

Much later, when you want to look up the contact but can only remember that he was interested in coin collecting, you can tap on the magnifying glass icon to activate the find feature, key in "coin" and hit Find Next. Contacts will take you right to the note field of the first person in your list with "coin" entered in the Notes field or any of the data fields. Since there can't be too many individuals with "coin," it will be relatively easy to find the correct entry.

This method of always entering contact information saves time and

hassle. Without the Handheld PC that information would have been almost impossible to find.

Plan for the week first, then for the day

There are many in the time management field who suggest, plan for the week, then review tasks at the beginning of the day as opposed to just creating a daily tasks list. The advantage of the weekly view is you have more perspective. You can schedule personal as well as business priorities at a time when you are not in "the heat of battle". If you only schedule a day at a time, you are likely to be driven only by what is urgent rather than what is important. If you make time for nonurgent yet important items, in the long run you will have fewer fires to put out.

ON THE H/PC:

Fortunately, week-at-a-time planning is easy on the Handheld PC. Open Calendar and tap on the Week button on the top bar. From the View menu you can change the screen to ½ hour or hour appointments and display 5 or 7-day week views. The hourly view will let you see the whole day. The ½ hour view will let you see more detail.

Plan out your whole week on Monday morning (or Sunday evening), making sure you cover all priorities, personal and business. Consult your Task list if you need to. The advantage of this approach is that you can allocate chunks of time at the beginning of the week to work on long-term goals — "work on the business," not in it. If an emergency comes up, you should immediately reschedule these important appointments with yourself.

How not to feel so burdened with all the things you have to do

During the day, many things you might do frequently come to mind. Many of these items are important but not urgent. One "trick" to take some of the internal pressure off is to label some of your Tasks as "maybe".

ON THE H/PC:

In Tasks, as you enter a new task, or modify an existing one, go to the Project field and type in "MB" for Maybe. When it becomes time to plan your week, take a look at all your Maybe Tasks and schedule the most important ones in the following week. The Maybe list will grow, so clean it up once a month, or so.

The advantage of this approach is that you can expand your todo list as appropriate, while not feeling that nagging anxiety of more things not getting done. You focus on the things that need to be done now, and re-evaluate "maybe's" when it is time to plan the week.

Don't "lose" your car again

Many of us can't enter a mall, attend a trade show, or stay at a hotel, without forgetting where we parked our car. This can become even more frustrating when traveling and you have to leave your car in a strange airport parking lot.

The solution is to get in the habit of creating an appointment in

Calendar for the day you are returning. The appointment should describe the car's location.

Keeping meetings focused and on time

Meetings enhance communications and coordination, both critical elements to the success of a business. However, meetings must be focused and individuals time-conscious, or meetings can cause more problems than they solve, and waste productive time.

ON THE H/PC

One of the boons of the Calendar program is the Notes tab associated with each appointment or event. For example, as ideas come to me about a weekly companywide meeting, I simply go to the next repeating appointment for the Wednesday 9:30 AM meeting and enter the ideas as they come to me. Likewise, before my weekly operations meetings, I spend a few minutes entering and refining an agenda. When the meeting starts, I read out my agenda items and ask what other points need to be discussed. I quickly add the other items to the list and number them by priority before beginning.

In addition to controlling the content, I also use the H/PC to control the meeting's time. First of all, I enter an appointment for the time the meeting is scheduled to end. That way, the alarm gives us a five minute warning (or however many minutes I choose). On longer meetings that I want to finish on time, I might set two or three appointments warning of the meetings end, so that the alarms go off ten, five and even two minutes before the end.

Keep important information with you, keep sensitive information secure!

Having the right information with you will let you take advantage of spare time or unexpected

opportunities. Unfortunately, having sensitive information with you all the time puts you at risk. If someone else gets a hold of your bank account or credit card numbers, it could cost you a lot of money. Keep important information with you, but be careful with it. Keep it protected — hidden in places another person wouldn't expect to find it.

ON THE H/PC

Sensitive information can include bank account numbers, credit card numbers, safe combinations and cash machine access codes. Names and addresses of important contacts are sensitive. There are a couple of ways you can protect this information on the Handheld PC.

1. Hide important information in unexpected places. You can put your credit card numbers and cash machine access codes in your Contacts database in unexpected places:

- * Under a fictitious name in Contacts, as the person's phone number.
- * In a Pocket Word document in an obscure folder, in another obscure folder, etc.
- * In the Notes field of an obscure entry in Contacts, Calendar, or Tasks.
- * A screen down in a Notes field, so that when someone opens the Notes tab, all they see is blank space.
- * In a hard-to-find part of a Pocket Excel worksheet. Make it hard to find for anyone except you, who will hopefully remember where it is.

2. Password protect your H/PC from the Password Control Panel.

Keep your Handheld PC "desk" clean

As barnacles grow on a boat, so stuff aggregates about our offices and on our Handheld PCs. In the physical and electronic world, clutter hampers our effectiveness and our fulfillment.

The solution is to regularly clean up, organize and toss out the extraneous material. Experts advise that you schedule a filing session once a week to deal with piles of paper and unwanted mail on your desk or in your in-box. Lessen the incoming volume of mail by taking the time to get off mailing lists. Throw away anything you haven't used in six months, and create storage spaces for your nonessential, but treasured barnacles.

Keeping the Handheld PC clean. Most of this advice applies to your Handheld PC. Make a weekly appointment for yourself to finish up and clean off past appointments and tasks.

At least once a year take a close look at your Tasks list. It tends to grow because there's always more things to do than time to do them. Take the ones that have been on the list a long time and are probably never going to be done and archive them in a Word document somewhere.

Again, at least once a year, go through your Contacts list and delete any that are no longer needed. From the main screen tap on the "My Handheld PC" icon and take a look at the files in "My Documents." Review the documents and delete or backup to your desktop any that you no longer use.

Strike While The Iron's Hot!

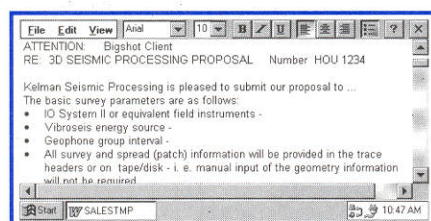
A Handheld PC and a little quick thinking land a \$150,000 contract.

By James L. Kendrick

I had a presentation meeting with a major oil company here in Houston and went to the meeting accompanied by our marketing representative, who was to do the actual presentation. I was just there to represent management and answer technical questions that might be asked. Ten people from the Client Company were there, ranging from technical people to management – they were the decision makers, capable of awarding us contracts.

As our marketing guy gave his presentation, I pulled out my HP 320LX to take notes on areas we needed to give more or less attention to in future presentations, material the marketing guy needed to get more familiar with, etc. My experience with larger systems (such as notebooks) is that they tend to distract the clients. It's like you're hiding behind it so they can't see what you're doing. The handheld is far less intrusive and they hardly noticed it.

I use the "James Kendrick" shorthand method for entering meeting notes. I type in key phrases, a dash, and then an observation. For example: "PreDM- GOM sub-salt." This phrase tells me the client was interested in "pre-stack depth migration to solve Gulf of Mexico sub-salt imaging problems." That may not mean much to you, but it means volumes to those of us in the oil busi-



I loaded a Pocket Word template for a proposal of this type, filled in the information, and was ready to make the proposal in 15 minutes.

The real reason they had invited us over was that they had a different, rather large project in mind that they were considering us for. I carefully made notes over the course of about an hour as the details were fleshed out.

ness. I find that my notes don't have to be that comprehensive because these client meetings are normally

focused on a given area and I can fill in any gaps from that context.

I developed this method of entering abbreviated notes years ago because my handwriting was so bad. I figured that if I didn't write as much, I could put a little extra attention on making it legible. This method has carried over well to the H/PCs small keyboard. I'm also going to experiment with a product called InScribe (see review in *Handheld PC Magazine Buyer's Guide*, page 66). InScribe adds an alphanumeric keypad to your H/PC's screen. To enter text, all you do is tap on the appropriate key. I'm going to use it for a full week "in the field" and see if my throughput increases.

A proposal in 15 minutes

As the meeting progressed, I noted each question asked by the clients so I could get a feel for the type of services they really needed and how our company could provide them. Based on the questions they asked it

ABOUT THE AUTHOR

James Kendrick is the Data Processing Manager for the Houston office of Kelman Seismic Processing, a company based in Calgary, Alberta, Canada. He has been actively participating in the computing industry for over twenty years, is IBM-certified as a speech recognition specialist, and is a volunteer technical advisor on the IBM Aptiva forum on CompuServe. He can be reached by email at kendri3@ibm.net.

PERSONAL EFFECTIVENESS

became apparent to me that the real reason they had invited us over was that they had a different, rather large project in mind that they were considering us for. I carefully made notes about this over the course of about an hour as the details and variables about this project were fleshed out.

As soon as I had all the informa-

tion I needed about the project, I immediately went to work on a proposal. I worked on it as our marketing person continued with his presentation. I already had a proposal template I'd transferred to Pocket Word from my desktop version of Word. I pulled it up and filled in the necessary information. In about 15

minutes I made an actual proposal for their project, including estimates on cost, time involved, and personnel needed for the project. As luck would have it, the manager who made the final decision wasn't at the meeting. As those present began discussing my proposal, I pulled out my cell phone and FAXED the proposal to the missing manager.

Within five minutes he appeared at the conference room door, apologizing for being tied up. The discussion then turned to the ACTUAL PROPOSAL he had in his hand. We left twenty minutes later with a \$150,000 contract in our back pockets, leaving a client convinced that we were technologically more advanced than our competition.

Part of that image, I have no doubt, cost me \$700 — the H/ PC!

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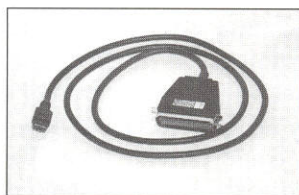
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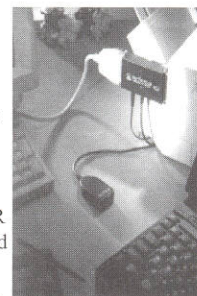
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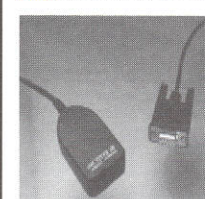
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BIG HANDS

and an itty-bitty KEYBOARD

Touch Typing on Your H/PC

By Matthew Sheffield

The H/PC's introduction in early 1997 was met with vociferous complaints about its small keyboard. However, as a user of HP's older DOS-based palmtops with even closer placement of the keys, I welcomed the H/PCs' new "big" keyboards. Still, they take some getting used to – and that is the key. Take the time necessary to become accustomed to the smaller keyboard and change the way you approach touch typing a little. You'll be surprised at how proficient you'll become. I'm even faster on my H/PC than several colleagues are on their full-size desktop keyboards.

Correct position of the hands and body

Many people make the mistake of trying to fit their entire hands on the H/PC keyboard. This is a recipe for aching fingers and plenty of mistakes – and it will not improve your typing speed! There's just not enough room for eight fingers on the keyboard. Learn to touch type with six fingers, resting the little fingers (the pinkies) to the left and right of the keyboard. Below are my general recommendations for finger positioning. But since both the size of your hands and the size of H/PC

keyboards vary, the exact positioning of your fingers may change. Use my positioning recommendations as a starting point and experiment.

Left little finger — This finger can hover above the tab key, ready to push the left shift, control, alt or tab when you need them.

Right little finger — You can lightly rest this key on the Enter key, ready to push it or drift to the right shift key, backspace and arrow keys. You can also use your right little finger for the equals and minus keys as well. Again, leaving this finger lightly on the Enter key will help you keep your other fingers positioned properly on the keyboard.

Left ring finger — Place above the q, w, a, and s keys.

Left middle finger — Slightly above the space between the s and the d keys.

Left index finger — In its traditional place on the f key.

Right index finger — In its traditional place on the j key.

Right middle finger — Slightly above the space between the k and l keys.

Right ring finger — Place above the l, o, p and ; keys.

Thumbs — About the only thing they are good for is hitting the space bar, but they're well placed for that.

I found body position to be more crucial with my handheld PC than with my desktop computer. Choosing the wrong body position can throw off the hand position, putting stress on the fingers and arms; causing aches, pains, and mistakes. Position your H/PC on a level surface. Modern computer desks are designed with a keyboard tray slightly below the level of the desktop. This is probably the best height to type from – below the desktop, slightly above the lap. Unfortunately, you can't always find one of these computer desks to

About the Author

Matt Sheffield works as a Webmaster and computer consultant for the University of Missouri-Kansas City. He has been an avid palmtop user since the release of Hewlett-Packard's HP 95LX in 1991.

rest your H/PC on. Other good choices for level surfaces are table or desktops, or a book or briefcase resting in your lap. Try to pick a level surface that will allow your elbows to hang below the palmtop and take pressure off your hands and fingers.

Practice makes perfect

There's a tendency for beginning typists to look at the keyboard as they type. Fortunately, your hands obscure your view of the keyboard, making it difficult to look at the keys as you type. Resist the urge to look at the keyboard and the display to see how you're doing. If you have to, start out typing the old standby, "The quick brown fox jumped over the lazy dogs." This phrase makes you hit all the letters on the keyboard. Type without looking at the keys, glancing from time to time to make sure your fingers are on home row. Don't worry yourself too much about making the same mistakes. Gradually decrease the number of times you look at your keyboard and screen. After you have completed a section of text, go over it carefully, observing your most frequent errors. Work on those. (Many of my first mistakes came largely from the area covered by the right ring and little fingers.) Adjust your technique if necessary.

Learning to type is a physical skill, not a theory. You'll need to put some attention on these principles as you use your H/PC. If you have the time you can get a typing textbook, or your favorite magazine and practice these principles. If not, keep them in mind and apply them as you use your H/PC. Over a short period of time you'll see results.

Other ways to improve your speed and accuracy

Once you've got the basics of touch typing on the H/PC down, you'll start to discover other shortcuts to speed things up that have nothing to do with hand and body

position. One of the most important ways is to utilize the H/PCs built-in keystroke shortcuts.

Almost all of the built-in CE applications can be controlled completely without using the stylus to tap on the screen. Using these Windows CE keyboard shortcuts keeps your hands on the keyboard. You don't have to stop, take out the stylus, and tap on the screen. Depending too much on the stylus is a sure way to slow things down a whole lot. Learning and using keyboard shortcuts lets you maintain a faster, more constant typing speed once you learn the keystrokes.

Since this article focuses mainly on Pocket Word, only its keyboard shortcuts will be listed. You can find keystrokes for the other applications in their respective help files. The

these shortcuts are identical to those you use in your desktop word processor.

Focus on learning the keystroke shortcuts you use most often. Those will increase your typing speed the most.

Another way to increase your speed and accuracy on the H/PC is to choose your screen fonts wisely. Many people use their H/PC to jot down quick thoughts, take notes, and compose memos while on the road. Part of entering data is checking it to make sure it's correct. The H/PC's smaller screen makes that a little more difficult, and the default fonts at 10 pts are just too small. Crank up the font size and experiment with the different fonts available in Pocket Word and Pocket Excel so you can see what you've typed. You can make the fonts as large as 22 pts in Word and 20 pts in Excel, and that is quite readable. You have a number of built in fonts to experiment with in Word and Excel. If those don't suit you, other TrueType fonts can be imported. I liked Book Antiqua (on most PCs), or Verdana (available from Microsoft at www.microsoft.com/typography/fontpack/default.htm). Be sure to use a medium font size like 12 or 14 as well. See your product manual for installing desktop fonts onto your H/PC.

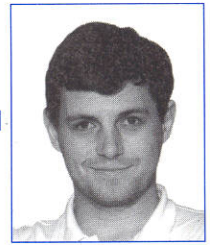
Get to know your keyboard

As with anything, there is no substitute for good, solid practice. Keep practicing these techniques as often as your schedule allows you. If you find yourself making a consistent mistake, focus on correcting that. If possible, try to keep your practice sessions relatively close together. Take your palmtop with you for a weekend and you'll appreciate the experience of getting to know your keyboard for the life of your machine.

POCKET WORD	
Keystrokes	Function
Ctrl+A	Select your entire document
Ctrl+B	Turn bold on/off
Ctrl+C	Copy selected text to clipboard
Ctrl+E	Center align text
Ctrl+F	Find
Ctrl+H	Replace
Ctrl+I	Turn italics on/off
Ctrl+L	Left align text
Ctrl+N	Create new, blank document
Ctrl+O	Open a file
Ctrl+P	Print current file
Ctrl+R	Right align text
Ctrl+U	Turn underline on/off
Ctrl+V	Paste text from clipboard
Ctrl+X	Cut selected text to clipboard
Ctrl+Z	Undo your last action
Ctrl+4	Find Next (no dialog box)
Ctrl+Del	Delete word to right of cursor
Ctrl+Bksp	Delete word to left of cursor
Ctrl+Shift+F	Activate the font face box
Ctrl+Shift+P	Activate the font point size box
Ctrl+Shift+L	Bullet lines

Windows cursor movement keys are not mentioned here as well as the Pocket Word outline keystrokes. You'll probably notice that most of

John Jerney



A Japanese Perspective on Windows CE

Japan may be the number two world economy, using current measures, but it's head and shoulders above everyone else when it comes to the energy and excitement of its mobile computing scene. While we in the United States dream about handhelds with color screens and wireless Internet connections, this is already old news to seasoned gadget freaks in Tokyo and elsewhere on this island nation.

Nowhere is this more evident than in a section of Tokyo known as Akihabara. Less than an hour's walk, and only a few subway stops from the grounds of the Imperial Palace, Akihabara started as a modest neighborhood. Following WWII, it became a well-known black market for radio parts and other electrical goods of the day.

Named after the JR [Japan Rail] train station close by, Akihabara has grown to encompass literally hundreds of electronic shops — many six, seven, or eight stories tall. In the process, it has followed Japan's ascendancy in consumer electronics, eventually reaching its present-day status as the premier electronics market in the world.

Recently Casio introduced into this market the first Handheld PC featuring the Japanese version of Windows CE. Sales of the English-language Cassiopeia, available earlier, were understandably modest as most Japanese consumers waited

for a version supporting their language. Officially known as Windows CE 1.01, the system has essentially the same suite of applications found in the English edition, but with one major addition: handwriting recognition.

As many of you know, Japan's complex writing system encompassing four scripts (Kanji, Hiragana, Katakana, and Romaji) can be a nightmare using a keyboard, but is nearly-ideally suited for handwriting recognition. Windows CE 1.01 employs the MS-IME-97 system, derived from the version found on the desktop edition of Japanese Windows.


The Japanese (Kanji) Cassiopeia is no doubt an impressive system, but even casual observation shows that it faces a Herculean challenge in a market already crowded by feature-rich devices ranging from the Sharp Power Zaurus, the Toshiba Libretto, as well as competition from a more local super-hero, the IBM Ultraman.

Press releases and news stories offer one perspective on the situation. However, to gauge the true feelings of a not-so-typical Japanese

consumer, I turn to my trusted friend and seasoned Akihabara-watcher Matsushita Shuji.

Matsushita-san has been making regular treks to Akihabara almost as long as there's been an Akihabara. With unswerving persistence, Matsushita-san is always able to track down first arrivals of almost any gadget. Finding the Kanji-equipped Casio was easy work

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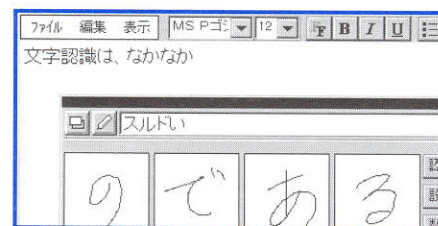
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ABOUT THE AUTHOR

John Jerney is editor of the six-year old industry newsletter "Pen-Based Computing: The Journal of Stylus Systems" and the Web-exclusive monthly "mobilis: the mobile computing lifestyle magazine" available at <http://www.volkware.com/mobilis>.



To enter Kanji, the Cassiopeia A50/51 displays a standard table of characters and the user composes his or her document by tapping on the appropriate character.



If the user cannot find the right Kanji character in the standard screen, the "Kanji Lexicon" screen is summoned, letting the user draw in the character, stroke by stroke.

however, as Casio introduced the device during the traditional gift-giving season of mid-summer with great fanfare.

"The Kanji Cassiopeia is loaded with 24 MB of ROM, six times larger than the U.S. version," explains Matsushita-san. "This vast space was necessary solely to contain the

Kanji system without spilling a byte. Now you can understand the magnitude of the Kanji problem!"

To accommodate a slightly different keyboard layout, which includes six additional keys necessary for the Kanji environment, the Kanji Cassiopeia is a bit larger than its U.S. counterpart. "The upscale

model A-51 is equipped with 8 MB of RAM. The standard edition, the A-50, has 4 MB. Everything else is the same as the U.S. model specification," reports Matsushita-san.

Performance on the device is acceptable, though perhaps a bit slower than the U.S. version. Matsushita-san attributes this to the extra burden required to process the double-byte codes that are part and parcel in a Kanji-based system. He also expressed surprise with Microsoft and Casio's decision to use a desktop version of the handwriting recognizer instead of creating a special version for CE.

"The 'Kanji Lexicon' is summoned when you cannot find the right Kanji to choose in the standard conversion table," explains Matsushita-san. "On a desktop computer, you draw the Kanji stroke by stroke with your mouse or digitizing tablet into a very large on-screen slot. The computer then locates the correct character, or its nearest candidates. One more click and the character goes into the text you are editing. Very time-consuming but the accuracy is surprisingly good."

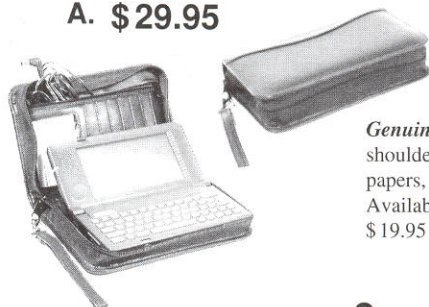
"When the Lexicon is transplanted to the Cassiopeia, the input slot inevitably shrinks due to the smaller screen. The lack of resolution can, however, be troublesome. If you draw an oblique stroke with the pen, the display often reproduces a vertical stroke, then a horizontal. The smaller screen can be frustrating at times," comments Matsushita-san.

Surrounded by the most active handheld market in the world, the Kanji Cassiopeia has its work cut out

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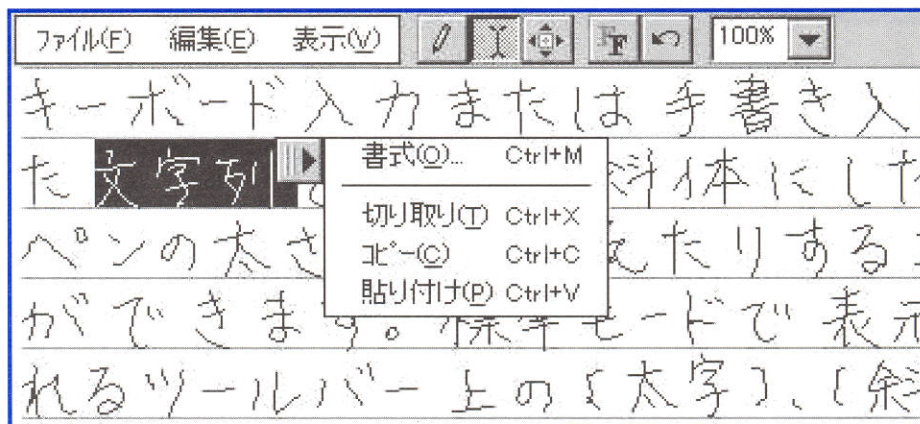
for it. Certain drawbacks notwithstanding, though, Matsushita-san credits Casio for getting the product to market in time to feed on the spending frenzy of the mid-year bonus season. Twice a year (mid-summer and late December), Japanese "salarymen" are treated to a special pay bonus that can sometimes equal months of salary. Getting to market to catch this can be as important as the product itself.

But Casio's compatriots are a fiercely competitive lot. Matsushita-san reports that Toshiba's Windows 95-based Libretto palmtop has captured significant attention among Japan's technology-savvy consumers. Likewise the Power Zaurus — Sharp's replacement for its highly innovative and equally successful Color Zaurus — is expected to reign high for months to come. Even 3Com's PalmPilot is selling well, now that the clever Japanese wizard Yamada-san (affectionately known as Hacker Dude-san) has ported Kanji to the pocket-sized device.

In fact, Sharp is so confident that it has plans to introduce an English, French, and German version in North America and Europe as quickly as six months from its Japanese launch date, an unusually short lead time. Sporting a bright TFT color display, integrated digital camera, and built-in Internet, Web, and email support, Sharp apparently believes that the time is right to bring forward the best of Japan as quickly as possible.

This doesn't mean exactly the same device however. Sources indicate that Zauruses outside of Japan will employ trusty keyboards for the more weary Westerners. Likewise, Sharp expects to have to tailor the options available for the Power Zaurus according to local markets.

Sharp is also expected to enter the Windows CE market before the end of the year. This means that the company will offer consumers a choice between Microsoft's Windows CE and Sharp's own propri-



The Cassiopeia A50/51 displaying a Pocket Word document being "spell checked." The drop-down list lets the user select alternative spellings using a hotkey combination.

etary operating system. The good news is that the new Windows CE device will likely sport a color screen making the choice just that much more tantalizing.

In the meantime, the Kanji Cassiopeia has scored an impressive coup for the time being. But is it a decisive win for Windows CE? "I'm

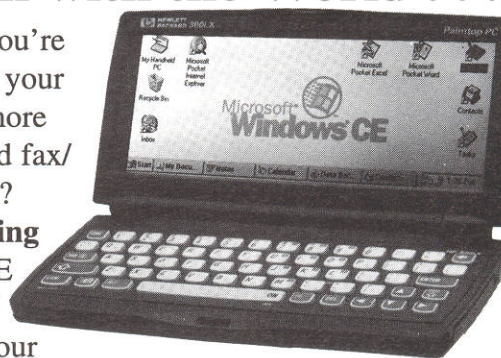
not very sure," says Matsushita-san. "The Japanese market has a notoriously short attention span. So initial brisk sales of the Kanji Cassiopeia does not, in itself, mean anything. I will come back after a few months and see."

I'll keep you posted.

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Andrew Seybold

H/PCs and Wireless Communications

Today, accessing your desktop computer wirelessly is no simple matter, and convincing your IS department to provide wireless access back to your own corporate LAN can be even more difficult. However, there are a number of ways you can use wireless access and your H/PC to increase your productivity.

While version 1.0 of Windows CE requires the H/PC device to be connected to your desktop via a cable to synchronize the two, Windows CE Version 2.0 supports full remote synchronization. This is an important change. Now you can synchronize your H/PC data with data residing on your own desktop with a wired or wireless connection from wherever you are. I believe that this new feature will result in the development of wireless solutions for this class of product. This does not mean that wireless connections back to a user's own desktop will instantly become easier, only that vendors will be addressing the problem with renewed interest.

In the meantime, there are a variety of services that provide wireless e-mail, Internet access, one-way and two-way paging and messaging, and fax send-and-receive capability. If you already have an Internet e-mail account, you can arrange to have it linked with a wireless network. Or you can have your e-mail forwarded to your wireless account. In some cases, by using a series of filters, you will be able to determine which messages will be forwarded and which

will remain to be read later.

To become wirelessly enabled, you will need four things:

- Your H/PC
- A wireless modem
- An account with a wireless network provider or service bureau
- In some cases, application-specific software

Most of the service providers offer a kit that includes a wireless modem, software to communicate with the network, and an account.

There are several different types of wireless networks that can provide service to H/PC users. If you have a cell phone and service, you can use a "cellular ready" analog PC Card modem to connect to your Internet Service Provider. Slip the modem in the H/PC, connect it to your cell phone via cable (make sure you get the right cable), and dial up as though you were using a wired phone. The caveat here is that dial-up cellular works best at 9.6 Kbps or slower, rather than the 28.8 or 33.6 Kbps you might be able to achieve with wired phones. You are charged for airtime just as though you were making a voice call, and

extra seconds are usually rounded up to the next whole minute.

The U.S. has a number of different digital cellular standards. If you are in an area where the PCS GSM system is offered, you will be able to connect your H/PC to it via a PC Card cellular modem adapter, which consists of a PC Card and a cable. You insert the card in your H/PC, connect the card to your GSM phone via the cable, and dial up at 9.6 Kb. This system requires an additional phone number for the same phone (one for voice, one for data). Once enabled for data, the phone can be connected to the H/PC and used much like a regular dial-up modem. The GSM data system is digital, thus it is far more robust than analog cellular. Users will not experience circuit drops or speed and throughput degradations that are often experienced with dial-up cellular.

Packet-Data Network Modems

All of the packet-based wireless systems offer some level of security. ARDIS and RAM's security is inherent in the design of the network. Messages sent via these systems are broken up and sent in discrete "packets" of data. The packets from

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Andrew Seybold heads a computer and communications industry consulting and newsletter company, and publishes the well-respected *Andrew Seybold's Outlook on Communications and Computing*. He has an extensive radio communications and computer background, is recognized as one of the top analysts in these fields, and is a founder and President of the Portable Computing and Communications Association (PCCA).

one message are intermingled with packets from other communications. In addition, these networks may operate on multiple frequencies, depending upon where a user is. This mingling of message packets and multiple frequencies mixes things up enough to make intercepting individual messages relatively difficult. Although not foolproof, these systems are sufficiently secure that users should not have to worry about their privacy. For those who do, the CDPD (cellular digital packet data) networks currently deployed an added level of security in the form of data encryption. There are also "end-to-end" encryption programs available that encrypt a message before it is sent and decrypt it after it is received.

Most wireless modems are Type II PC Cards with an extension on the end of the card that houses a battery, transmission and reception circuitry, and the antenna. The modems presently on the market use a 9-volt battery to power the transceiver. Depending upon the type of device the modem is used with — desktop, notebook, H/PC, etc.— users can set the system to recharge a 9-volt NiCd battery or use a throwaway alkaline battery.

One advantage to using wireless modems is that they are self-powered. They do not draw power from the H/PC and do not require an external source of power to operate for long periods of time. If you have used an external PC Card modem with your H/PC, or even the 14.4-Kbps modem built into the Philips Velo, you know that without external power, card modems dramatically reduce your H/PC's battery life.

Each wireless network requires a modem specifically designed for that network. Motorola makes the Personal Messenger Wireless Modem Card for use with the CDPD and ARDIS networks, while Research In Motion makes one for the RAM Mobile Data network. (This wireless modem is also OEM'd by Megahertz

and sold as its AllPoints Wireless PC Card.) There are other wireless modem vendors, but their products are designed for use in notebook or laptop computers as opposed to H/PCs. Most of these require a Type III PC Card slot (two Type II slots stacked) and draw all of their power from the computer.

Wireless Networks vs. Service Providers

You can obtain wireless service directly from wireless network providers—ARDIS, CDPD, RAM, SkyTel, or Metricom. You can also access it from one of a number of service bureaus that specialize in various wireless data services. The best known of these are RadioMail (ARDIS, CDPD, RAM, and dial-up), Wynd Communications (RAM), DTS/Zap-it (RAM), Locus (RAM), and Infowave (RAM and CDPD).

Each offers basic e-mail and wireless access as well as ancillary services. Fax send and receive, text-to-speech, and other services are available depending upon your requirements. Service costs also vary, but a typical, heavy e-mail user will find that his or her monthly wireless data bill will run in the \$40-\$75 per month range. Several of these companies offer tiered, flat rate pricing, so the more you use the service, the cheaper it is per kilobyte.

All of these service providers offer Internet e-mail access. If you want to surf or browse the Net, Go America offers software that will enable text-based access to the Net. (Graphics over wireless is a less than pleasing experience because of the slower data speeds.) In many cases, your existing Internet provider can work with one of these services to provide an extension of your ISP e-mail address over a wireless network so that a separate mailbox will not be required. (For example, aseybold@outlook.com is auto-forwarded to aseybold@radiomail.net.) The only caveat here is that attachments generally cannot be sent over a

packet-data network, and some systems limit the size of the files that can be sent and received. In my case, I limit the size of a wireless file to about 2K and hold the larger messages on my server.

New Types of Services

Most of the companies mentioned above have released or are about to release upgrades to their systems that will help provide access back to a user's own e-mail and information resources. There are still many issues to deal with to be able to connect directly back to a desktop computer on the corporate side of an Internet firewall. However, Wynd, RadioMail, DTS, Infowave, and Locus all offer corporate solutions that will permit a corporate LAN to be securely connected to one or more wireless data networks. Several other companies are also working on solutions and Microsoft is working with the

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Portable Computer and Communications Association to find ways to provide secure, inexpensive links between corporate LANs and wireless data networks.

The H/PCs

Here at *Outlook*, we perform compatibility tests of wireless devices and mobile computing devices. Computers generate radio frequency signals that can affect the performance of the radio modem, and radio modems can interfere with a computer's CPU, memory, and/or display.

The good news is that all of the H/PCs we have received for testing have passed with flying colors. It appears that H/PC vendors have taken the time and effort to make sure that their H/PCs are RF-friendly. So far, we have tested the NEC, Casio, Compaq, and Hewlett-Packard devices. (The Velo we received from Philips did not include the optional PC Card slot. However, we were able to determine that the Velo does not emit any RF that would interfere with a wireless modem, and also that an RF modem in close proximity does not cause interference to the Velo.) We have not been able to test the Lucky GoldStar (LG) or Hitachi units (they are the same). However, since LG is offering a unit with a CDPD modem, our assumption is that these units are RF-friendly as well.

H/PCs and RF Modems


I have been using several H/PCs with wireless modems for several months. I have experimented with RadioMail, Wynd, and DTS. All of the devices and services work well. I have grown accustomed to running my life via wireless e-mail and it has become an important part of my mobile arsenal. Anyone needing quick and easy access to their e-mail during the course of a day when they are mobile will quickly come to appreciate the convenience of wireless access from an H/PC.

All of the wireless e-mail software I am using installs under the

H/PC Inbox, and changing from dial-up to wireless is as easy as tapping on the "service" item in the menu bar of the Inbox and choosing which network or service you want to use under "connect." Now that Windows CE version 2.0 supports remote synchronization, the next step will be for these service providers to extend the reach of their products to include not only e-mail access but calendar and file synchronization as well. Some interesting work is being done in this area, both in terms of corporate and individual solutions. Several companies are working with software that will be installed on your desktop system to "push" your e-mail and synchronization information out to a private web site (beyond the firewall). You will not have to pass through your corporate firewall, and all of the wireless networks are connected to the Internet.

Windows CE version 2.0 makes it possible to provide users with remote synchronization and will, I believe, drive the adoption rate of wireless H/PC access. Today it is possible to use wireless connectivity to be more productive, it is cost effective, and, while not easy, it can be implemented. It is only going to

get better. Now that Microsoft is interested in wireless as an enabler to Windows CE communications look for better and faster solutions.



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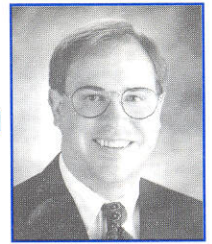
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Carl Merkle



Handheld PCs: Corporate Tool or Toy?

Handheld computers are often thought of as overhyped executive toys. The limited capabilities of early PDAs and handhelds, especially when compared to high-performance desktop or laptop PCs, have continued to foster this view by the general public.

Don't let this common misperception fool you. Today's handheld computing devices are powerful tools when used as an element of a networked computing infrastructure in the right mobile computing circumstances. They provide a high return on investment and give you a competitive edge when tailored for a specific use with a widely distributed mobile workforce. Just look at what FedEx and UPS have done with their very-specific handheld devices.

The key: Communications and Computing power

I predict that handheld PCs will become popular with corporations and large organizations searching to harness the communications and computing power of technology using a standardized, low-cost device based on a "thin-client" model. I base this prediction on the following factors:

- ◆ Increased corporate interest in harnessing technology to gain a competitive edge.

- ◆ Many currently successful handheld computing deployment examples.
- ◆ Increased corporate interest in mobile computing.
- ◆ Rapid acceptance of Internet technologies and thin-client computing.
- ◆ Corporate concern about the Total Cost of Ownership of PCs and their desire to dramatically reduce the high cost of computing.
- ◆ Moore's Law (the rule-of-thumb that microprocessors will double in capacity every 18 months and will drop in price).
- ◆ Continued innovation in small form factor PCs by a variety of vendors.
- ◆ The role of "big players" in the handheld computing market.

Many of the changes that made their way into Windows CE 2.0 were made at the request of corporate users and include improve-

ments that make corporate fleet use simpler. In addition, Hewlett-Packard announced TopTools, software that gives network administrators a simple standardized means of managing HP 360LX and 620LX palmtop PCs as components of an enterprise network.

Mobile computing: Still an emerging trend

Most administrative professionals are desk bound. Internal accounting departments and secretarial pools have had desktop PCs for a number of years. This is not true for the mobile workers responsible for generating revenues and meeting the customers face-to-face. Size, weight, cost and performance issues, as well as a natural aversion to change, have held back widespread deployment of mobile PCs. Signs abound that this is changing.

I'll use my former employer as an example. With over 21,000 mobile professionals in the U.S., they began providing standardized

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Carl Merkle is the Director of Corporate Projects for Shier Systems & Software, Inc., and is responsible for managing delivery of ultra-mobile computing and communications business solutions to corporate accounts. A CPA by background, Carl was previously a senior manager with Ernst & Young, LLP. Carl lives in Irvine, California with his wife and three children, where the use of handheld PCs is woven into the fabric of their daily activities. He can be reached by e-mail at: carl@shier.com or by voice-mail at 714-559-1142.

laptop computers to every professional beginning in 1996. Prior to that, the firm used a mix of shared PCs and Macs, and had no clearly defined computing, communications and knowledge sharing strategy. But the inherent benefits of electronic communications, and information sharing and re-use over LANs and WANs became more and more obvious.

That, combined with the advantages of standardized use of common productivity tools such as word processors and spreadsheets, compelled my former employer to commit enormous resources to "automating" everyone in the firm. The software tools they selected required the deployment of fat clients running on powerful laptops.

For a professional services firm with the resource-hungry applications then available, my former employer's platform selection made sense. However, the cost they incurred per workstation was substantial. (Even though it was at the lower end of the Gartner Group's Total Cost of Ownership study.)

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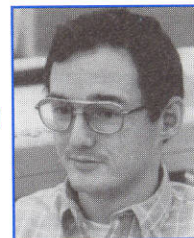
Handheld PCs: A less expensive solution to workforce automation

Many organizations with mobile workers do not have the financial resources necessary to make such an investment. Fortunately, they can obtain similar computing and communications benefits at a fraction of the cost by adopting the thin-client model. The massive storage of data and power computing can be left to the network. Less expensive and less powerful handheld PCs networked through Internet technologies provide enough local computing power and content to accomplish the task at hand and provide access to vast amounts of information on the network.

Since handhelds deployed in such a fashion would use a consistent standardized interface, the high costs of training and maintenance are reduced. Less file storage on the handheld encourages more intelligent use of the network for data storage and information sharing. With handhelds, the existing communications infrastructure can often be used with little need for the very expensive high bandwidth pipes typical networked PCs or Network Computers demand.

In the next column, I'll explore the planning and implementation strategies necessary to successfully deploy handheld PCs to a large workforce.

I'm always interested in hearing of your success or disaster stories in using handheld PCs in a corporate environment. Email me at carl@shier.com.



Everett Kaser

Crank Starting the Model-T on a Cold Morning

Setting up a Windows CE programming system

The King is dead! Long live the King!" This old saying always confused me as a youngster. It seemed so self-contradictory. But as I started trying to wrap my mind around Windows CE programming (and all that it entails), a similar statement kept coming into my head: "Programming is easy! Programming is never easy!" If you've written Windows programs before, then writing a Windows CE program should be easy, and it is...sort of.

Setting up a computer to program for Windows CE

The first thing I had to do was set up a desktop computer on which to write Windows CE programs. (You can't write programs on a handheld PC.) My task was to first set up a desktop PC running the Windows NT 4.0 operating system. On top of that I had to install Visual C++ 5.0, and then Visual C++ for Windows CE (VCCE). Finally I had to get the NT computer to talk to the CE handheld. Each of those steps was "easy"... and not so easy.

Anyway, once Windows NT was setup, then the Visual C++ installation went smoothly (although slowly). The installation of Visual C++ for Windows CE also went smoothly until the very end. One of the last

things the VCCE installer tries to do is to set up the networking Remote Access Services (RAS) between the NT machine and the H/PC. It recommends letting it remove the current Remote Access setup so that it can re-install it "correctly" for use with the H/PC. Being a trusting soul, I clicked on OK and restarted Windows just like it told me to ... sigh!

Windows NT patiently told me that a service had failed to start, and to consult the Event Viewer to find out what was wrong. The Event Viewer is not user-friendly, but steadfast foot soldier that I am; I managed to corroborate my hunch that the Remote Access Services setup was messed up somehow. I hadn't a clue what might be wrong or how to go about fixing it. But, I figured that Microsoft's advanced, high-tech Help system could help me troubleshoot the problem. To make a long story shorter, after clicking through lots of questions, I made it into the networking setup screens and made some changes suggested

by MS-Help. But no matter what I did, I couldn't get RAS configured properly to access the H/PC from the desktop. Finally, I started over with a completely reformatted hard drive. I tried the whole thing again, and got the same results ... sigh!

I realize I was probably doing something terminally unintelligent, but couldn't figure out what it was. Finally, I started over one more time. At the very end of the installation process, when Visual C++ for Windows CE recommended that I let it remove the current Remote Access setup and re-install it correctly, I told it to keep its filthy fingers off of my RAS (i.e., I clicked on "No"). After installation was done (and VCCE had warned me that things might not work properly since I hadn't let it setup the RAS for me, thank you) I then ran the HPC Help system and followed its steps for manually setting up the RAS. Magic-presto, alakazam! It worked fine ... finally!

ABOUT THE AUTHOR

Everett Kaser worked for Hewlett-Packard for 20 years as a software engineer, most recently helping to develop the HP 95/100/200LX palmtop PCs and the HP 5000/5500/5700 laptop computers. He left HP in Spring 1997 to run his own software company where he is Chief Wizard and Duke of the Realm. His company produces logic and puzzle games for PCs, which are available from his Website at: <http://www.kaser.com/~everett>

Revving up the engine... Smaller is better

The next step was to get a handle on using Visual C++ and Visual C++ for Windows CE in the Developer's Studio environment to create a Windows CE application. My first big concern was the size of the programming code I'd have to generate. H/PCs have limited memory compared to a desktop or notebook PC. The size of the executable and the amount of the computer's memory and CPU resources needed to run it are critical. I decided to build a "trivial" program in several different environments and compare their sizes. A trivial program is a very simple program written to test to see if all the components of a programming system are working properly. The classic C-language trivial program is Hello World. Run it and it simply displays "Hello world!" on the screen.

The DOS version of the Hello World program takes about 28 bytes, using INT 21 function 9 as an assembly language .COM program.

Some at Microsoft might think that a desktop-only programming system for Windows CE makes sense. However, I'm an ornery, individualistic cuss, and if I'm going to have a computer, then by Geek! I'm going to program on it! Even if it means boot-strapping my way there.

Using Microsoft C 6.0, the program takes just under 5400 bytes. Charles Petzold saved me the trouble of writing a Windows 3.1 version of Hello World. The first sample program in his classic book "Programming Windows 3.1" is a version of this program, called HelloWIN. I grabbed its source code off of the diskette included with the book, compiled it (using VC++ 1.52, running on Windows 95) and got a 4512 byte executable file.

The next step was to move HelloWIN over to Visual C++ 5.0 on my Windows NT machine. Maverick's Pappy always said, "We learn from our mistakes." Well, I'm learning very fast! I first tried to just

import the Win 3.1 source files into the Developer's Studio environment, but got way too many errors and warnings, due to changes in code syntax and structure between the two development environments. There weren't that many differences, but I didn't feel like trying to patch things up. I wanted to start things from scratch, "the right way," in Developer's Studio.

Dynamic Link Library

I changed tactics and created an MFC application. (MFC stands for "Microsoft Foundation Class" — a library of "classes" for Microsoft Visual C++ that provide C++ class-interfaces to the standard Windows programming functions.) Quickly, I had a Windows CE version of HelloWIN. The only problem was that it was around 180 Kb when compiled, with MFC linked into the EXE. You can run MFC as a separate DLL file on your H/PC and reduce the size of the HelloWIN executable to only a little over 17 Kb, but the MFC DLL file takes up about 288 Kb — both executable and DLL total

305 Kb! Many people will wind up with the MFC DLL on their machine, because there will be applications that they want to run which require it. It only has to be there once, and then multiple applications can use it. But when I've only got between 2 Mb and 6 Mb of RAM that has to be shared between file storage and system RAM, I'm not too happy about giving up almost 300 Kb of it. Even discounting the DLL, the Windows CE version of HelloWIN, at almost four times the size of the Windows 95 version, is way too large!

Finally I created a non-MFC (Win 32) version of HelloWorld for

Windows CE. At 4 Kb, it was more reasonable in size. So, as much as I like programming in MFC, I'm afraid I'll be sticking to non-MFC projects for Windows CE for a while.

Different programs for different processors

Another interesting fact that most HP/C users and many programmers don't realize is that the different processors in the H/PCs require slightly different versions of a program. Actually, you write the same code, and just compile it differently. End users don't know this because the installation portion of programs marketed for the H/PCs senses the type of processor the H/PC has and installs the appropriate version of the program.

The last thing I was curious about before starting work on a "real" project was to see how the sizes of the executable files for the different processors compared. As a test case, I opened a sample project from the Developer's Studio (DevStudio\WCE\SAMPLES\REVERSI) and compiled the release version for the SH3, MIPS, and x86emul (Intel WCE emulation) environments. The sizes of the executables are as follows:

Processor	File size (Kb)
SH3	17408
MIPS	23040
x86	15872

I expect this to be fairly typical, as several times during my experiments I tried this on my test programs, and the MIPS executable always came out larger than the SH3 executable. I don't know how the speed of the two processors compares (since I don't have a MIPS-based machine currently), but the SH3 certainly seems to have a more efficient instruction set for size of the executable.

Driving away in first gear

One of the first things I did when I got my H/PC was compare it to other handheld devices I'd

used, specifically the Hewlett-Packard Palmtop PCs (the 95LX, 100LX and 200LX). One thing I sorely missed on my H/PC that the early HP Palmtop PCs provided was a native programming language. To write even a simple program for Windows CE you have to have an NT platform with layers of programming tools. I'm a programmer, and what good is a computer if you can't program on it?

Now I realize that Microsoft has a "vision" of the H/PC as a companion to the desktop computer. Some at Microsoft might even think that a desktop-only programming system for Windows CE makes sense. However, I'm an ornery, individualistic cuss, and if I'm going to have a computer, then by Geek! I'm going to program on it! Even if it means boot-strapping my way there. (That's always more fun anyway.) Unfortunately, there is one small hitch in my plans — with the current batch of H/PCs, we're no longer in Intel-land, Toto. In fact, we don't know what land we are in because Windows CE is designed to (and does) run on different CPUs. This means that:

When you write your program and expect it to be used on any available H/PC, you have to compile it multiple times and distribute multiple copies of the executable.

You can't write in assembly language. If a new computer gets introduced using a new CPU, they can't use your program until you recompile it for their CPU.

What we need to solve this painful situation is to develop an interpreted language for (or modify an existing one to work with) Windows CE. True, programs using interpreters are slower than compiled programs. But you only have one program to recompile for different CPUs, and that's the interpreter itself. Then any program written in the interpreted language would run fine on any H/PC. Ideally, the interpreter should be small, yet contain as much functionality as possible.

Such a language would fill the shoes of batch files on MS DOS machines, yet support the development of quick, simple Windows applications as well.

The first interpreted language that popped into my head was JAVA. But I threw it out the "window" very quickly because of the heavy resource requirements of the JAVA compiler. No, what we need is something similar to "Tiny BASIC," only targeted at the Windows CE environment. It should compile the

source into "byte codes" to make the executable as small as possible and its execution as fast as possible. It also should support the creation of a main window, dialogs, and basic file operations. Ideally, besides a standard "windows" operating mode, it should also be able to present a "command-line" interface of some sort.

Keep these thoughts in mind. See you next issue, same magazine, same column.



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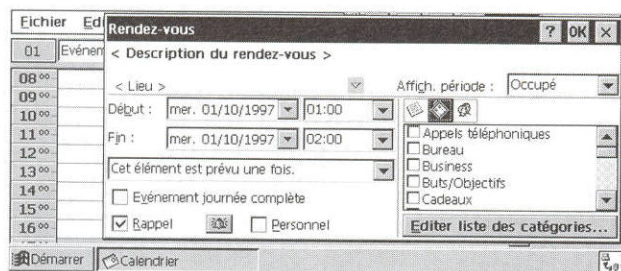
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News

Windows CE 2.0: International Versions

Microsoft ships international language versions Of Windows CE 2.0 for the Handheld PC



Microsoft has released its Windows CE 2.0 operating system for the H/PC in five new languages: French, German, Italian, Portuguese and Spanish.

These "localized" versions have been released to Microsoft's 10 original equipment manufacturers, including: Casio, Compaq, Ericsson Mobile Communications, Hewlett-Packard, Hitachi, LG Electronics, NEC, Novatel Wireless, Philips Electronics, and Sharp.

Pocket Applications Localized

In addition to the Windows CE operating system, the Handheld PC user interface and the suite of "Pocket" applications, including Pocket Outlook, Pocket Word, Pocket Excel, Pocket PowerPoint, and Pocket Internet Explorer, have been localized for international use. Windows CE 2.0 now supports Unicode characters. That and the release of additional development tools for Windows CE 2.0 will make it possible to create international applications with full font support.

H/PCs using these international versions of Windows CE will be able to connect to and synchronize with a desktop PC using a different language. For example, if a French-based H/PC is connected to an English-based Windows NT or 95 desktop PC, it can still synchronize data and transfer files.

Each H/PC manufacturer will set its own release schedule and pricing structure. We will announce these new versions as we find out about them from the manufacturer.

New Novatel Handheld PC

Novatel CONTACT Handheld PC with built-in wireless/landline modem



Due for release early in the first quarter of 1998 is the Novatel CONTACT, a Windows CE 2.0 handheld PC for mobile users depending on wireless and landline communications. CONTACT comes with an integrated 19.2 Kbps wireless modem and a 14.4 Kbps landline modem. CONTACT provides users with the standard Windows CE 2.0 features along with the ability to send and receive email, browse the Internet, or access their corporate Intranet. With the exception of cables and adapters, all necessary hardware and software is built into the CONTACT. For more information on the Novatel CONTACT, see Your H/PC listing, page 69.

Accessories and Other Available Options (prices suggested retail):

For more information, contact Novatel Wireless at 888-888-9231, fax: 403-295-4888; Website: www.novatelwireless.com

Casio pen-entry handheld

Casio is taking advantage of Windows CE 2.0's new capabilities and developing a pen-entry only handheld device similar to the Palm Pilot. Expect an official announcement and product demonstration at the Consumer Electronics Show in January.

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Compaq



Compaq PC companion

Compaq is developing a Windows CE 2.0 PC companion in both mono and color configurations. These products will come with a high performance MIPS-based RISC processor designed

for Windows CE 2.0, EDO memory ranging from 4MB to 32MB (user upgradeable), a 640 x 240 Mono or Color Touch Sensitive Display, an integrated 33.6 modem (optional in some countries) and a PC Card slot. They will be powered by two Alkaline or NiMH Rechargeable AA batteries and will come with a serial cable for connectivity.

Windows CE 2.0 Upgrade Program

Compaq will offer a Windows CE 2.0 upgrade to existing PC companion owners. Details will be available soon.

Accessories and Other Available Options

- Cradle ■ Rechargeable Battery Pack
- Stylus 3-Pak ■ Auto Adapter ■ AC Adapters ■ 10MB Flash RAM PC Card
- Auto-Sync ■ Other communications options.

CONTACT your local Compaq dealer or Compaq's Web site: www.compaq.com/products/handhelds/index

Casio




Casio CASSIOPEIA A-20 — \$599.95

The CASSIOPEIA A-20 comes with Windows CE 2.0, 8 Mb of internal RAM, a 640 x 240 backlit display with 4 shades of gray, a Hitachi SH-3 (80 MHz) CPU, one PC Card plus and one Compact Flash memory expansion slot, a built-in microphone and speaker. The A-20 also comes with an external AC adapter standard.

Additional software on CD ROM

(or Casio website for registered users)

- Casio QV-Link digital camera connection software. ■ Casio Project Scheduler project management and scheduling software. ■ Casio Paint-Atlas drawing/painting application with map symbol library and drawing tools. ■ Casio Sound-Vega voice memo software lets you record and playback voice notes. ■ Casio Voice Applications voice command software. ■ Casio Teleconferencing Software. ■ Casio Easy File Tool. ■ Financial Consultant Calculator. ■ bFAX Pro: Send and receive faxes and Casio QV Digital camera image files. ■ pcANYWHERE CE remotely access PCs from CASSIOPEIA. ■ QuickNotes Electronic InkPad captures handwritten notes,



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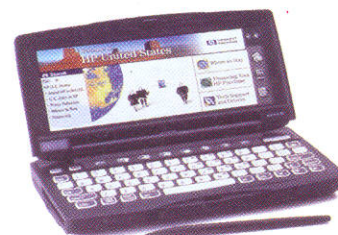
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CONTACT your local Casio dealer or Casio, Inc., USA; Phone: 201-361-5400; Fax: 201-361-3819; Website: www.casiohpc.com

Hewlett-Packard



Hewlett-Packard 620LX — \$ N.A.
 (Windows CE 2.0, 16 Mb RAM and color display)
Hewlett-Packard 360LX — \$699
 (Windows CE 2.0, 8 Mb RAM monochrome screen)

HP's 360LX and 620LX come with Windows CE 2.0 built-in. Both H/PCs feature well-spaced QWERTY keyboard, serial port, infrared ports, a Type II PCMCIA slot and a CompactFlash Card slot. Both are powered by rechargeable batteries.

HP 360LX — Comes with a 60 MHz CPU, 8 Mb RAM, a large 640x240 monochrome screen with "natural-white" backlighting. Accessories included with 360LX package: User Guides; Two AA NiMH batteries. One CR2032 coin cell backup battery. CD ROM with free software.

HP 620 LX — Comes with a 640x240- pixel 256 color screen with natural white backlight, a 75MHz CPU and 16 Mb of RAM. In addition to the ports mentioned above the 620LX has a built in microphone and audio speaker which supports its Voice Recorder. The 620LX comes standard with a Lithium-Ion rechargeable battery pack and an AC adapter. Accessories included with 620LX package: Lithium-Ion battery pack; One CR2032 coin cell backup battery; two CD ROMs with free software; Synch cable; Docking Cradle; AC Adapter.

Both units come with Windows CE 2.0, its accessories and "Pocket" applications. In addition, the new HP Palmtop PCs have the following software built into ROM: bFAX — to send and receive faxes; bFIND — a global search utility. Financial applications software (full

ideas and sketches. ■ IntelliMigrate transfers calendar, contact, and tasks from other H/PCs. ■ IntelliSync: Trial version of popular synchronization program. ■ Virtual Courier Lite retrieves e-mail from cc:Mail and Microsoft MS Mail/Exchange LAN email systems. ■ PageCard software for receiving wireless text messages using a Socket PC pager card (sold separately).

Windows CE 2.0 upgrade program

CASSIOPEIA A-11 and A-11 Plus owners can upgrade their H/PCs to Windows CE 2.0 free of charge until December 31, 1997. Other A-11/A-11 Plus owners can purchase this upgrade kit for \$99.99.

versions available when you register your Palmtop PC; Remote Networking; (to PPP access servers); Terminal Application (TTY, VT-100).

Additional software on CD ROM

H/PC Explorer version 2.0: desktop PC software for connecting HP palmtop PC to PC; Translation software: converts HP 100/200LX & OmniGo 100/120 appointment/ phone books to H/PC formats; Trial software from independent software vendors, including: Mail on the Run!; Pocket On-Schedule; Ardis wireless solutions bundle; Wyndmail /CE and more.

Other HP Handheld PCs

HP 320LX with Windows CE 1.0, 4 Mb RAM, monochrome screen — \$599

HP 300LX with Windows CE 1.0, 2 Mb RAM, monochrome screen — \$499

Windows CE 2.0 Upgrades

ROM Upgrade Kit: \$129 (U.S.) (Free to 320LX purchases after Sep. 2, 1997) Available through Feb. 28, 1998. HP provides a ROM upgrade program for the 320LX only.

Accessories and Other Available Options

(prices suggested retail)

■ HP CompactFlash Memory plus PC Card slot adapter: 2 Mb (# HP F1229A)

— \$99

4 Mb (# F1231A) — \$149

10 Mb (F1233A) — \$299

15 Mb (F1245A) — \$ N.A.

■ AC Adapter: 300-360LX (HP F1218A) — \$29.99

620LX (HP F1241A) — \$n.a.

■ HP Docking Cradle/AC Adapter:

300-360LX (HP F1224A) — \$29.99

620LX (HP F1241A) — \$n.a.

■ Sync. Cable (HP F1223A) — \$14.99

■ HP Leather Case (HP F1227A) — \$69

■ Stylus 3-Pack:

300-360 (HP F1225A) — \$9.99

620LX (HP F1247A) — \$n.a.

■ 620LX battery packs:

Standard (HP F1253A) — \$n.a.

Extended (HP F1254A) — \$n.a.

■ 620LX VGA PC Card adapter (HPF1252A) — \$n.a.

■ 620LX External Charger (HP F1246A0) — \$n.a.

CONTACT your local HP dealer or Hewlett-Packard Company, Phone: 800-443-1254; Website: www.hp.com/handheld

Ericsson



Ericsson Mobile Communications MC 12 — \$N.A.

Ericsson Mobile Communications new MC 12 works immediately with an Ericsson mobile phone. Its built-in software modem is easy on battery life and lets the user communicate wirelessly. You can synchronize your MC 12's Contacts list with the phone book of your Ericsson phone.

CONTACT Ericsson Mobile Communications; Web site <http://mobile.ericsson.se>

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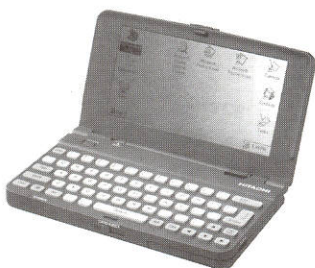
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Hitachi



Hitachi Handheld PC with Windows CE 2.0 — \$N.A.

Hitachi's new Handheld PC with Windows CE 2.0 will be available in the first quarter of 1998. Price and product description have not yet been announced.

Other Hitachi Handheld PCs

Hitachi Handheld PC with Windows CE 1.0, 4Mb with 28.8 bps modem — \$599.95

Hitachi Handheld PC with Windows CE 1.0, 4 Mb RAM — \$499.95

Windows CE 2.0 upgrade

Not available for Hitachi Handheld PCs.

Accessories and Other Available Options

(prices suggested retail)

AC Adapter (HPWMB10) - \$49.95

Serial Cable (HPWSC10) - \$24.95

28.8 bps Modem Board (HPWM B10) - \$179.95

CONTACT your local Hitachi dealer or Hitachi Home Electronics (America); Phone: 770-279-5600 or 770-279-5696; Web site: www.hitachi.com.

LG Electronics



LG Phenom w/Windows CE 2.0 and 8 Mb RAM — \$599

The second generation LG Phenom Handheld PC comes with a wide (640x240) backlit screen, 8Mb RAM, VGA out-port with cable, voice memo capability, and built-in fax/modem and a Type II PCMCIA slot and Compact Flash slot for user expandability. The Phenom sports a Hitachi SH7709 processor and is 7.7" W x 4.3" D x 1.2" H. The LG Phenom comes with rechargeable batteries, built-in charger, docking station, power adapter and CD-

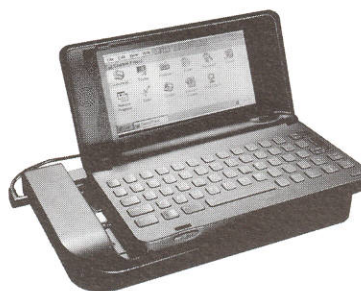
ROM with third party software applications.

Windows CE 2.0 Upgrades

LG will offer a Windows CE 2.0 upgrade for existing Phenom users, but details have not yet been worked out.

CONTACT your local LG Electronics dealer or: LG Electronics Customer Information Center; Phone: 800-243-0000; Web site: www.lge.co.kr.

NEC



NEC MobilePro 700 — \$N.A.

NEC's MobilePro 700 comes with Windows CE 2.0 built in, an NEC 54 MHz low power MIPS VR4102 processor, 8 Mb of RAM (expandable to 32 Mb), and 16 Mb of upgradeable ROM. It's longer and wider than the earlier MobilPro (9.65 x 4.8 x 1.22 inches) and weighs in a bit heavier (1.48 lbs). It sports a larger, "finger friendly" keyboard, an easier-to-read monochrome display (640 x 240 Backlit LCD Touchscreen 7.3" diag.), and comes with a built-in 33.6Kbps low-power hardware modem.

The MobilePro 700 is powered by 2 AA Alkaline batteries (25+ hours) and an optional Lithium Backup that can be charged in an external battery charger. It comes with one PCMCIA Type II Slot, one Compact Flash Slot, a VGA port to connect it to an external monitor for presentations (cable adapter included); serial and IrDA infrared ports. It has voice recording capability with built-in microphone and speaker. MobilePro 700 also comes with Quick Keys, which lets users program keys to launch applications.

Comes standard with an AC adapter, PC cable, RJ-11 cable, batteries; Windows CE Services 2.0 with Pocket Expedia and MobilePro Bonus Software CD (see below).

Bonus Software Bundle

■ Virtual Courier from MicroBurst, for accessing cc:Mail or MS-Mail on the road. ■ pcANYWHERE from Symantec, for remotely accessing and controlling another PC from your MobilePro. ■ IntelliSynch, Puma's popular program that let you synchronize your MobilePro with other PC-based PIM applications including Symantec ACT and Lotus Organizer. ■ bFAX from bsquare software, for sending faxes from the MobilePro.

■ QuickNotes from CIC, an electronic notepad for taking handwritten notes on the MobilePro ■ Sprynet, for accessing CompuServe from the MobilePro.

Other NEC Handheld PCs

NEC MobilePro 400 — \$399

NEC MobilePro 450 — \$499

(Both includes Windows CE 1.0, 480x240 screen, Docking Cradle, PC Cable, AC Adapter).

Windows CE 2.0 Upgrade Program

Details unavailable.

Accessories and Other Available Options (prices suggested retail)

16Mg Memory Upgrade (for the MP 700) — \$N.A.

32Mg Memory Upgrade (for the MP 700) — \$N.A.

Compact Flash Card (for the MP 700) — \$N.A.

Docking Cradle (for the MP 400-450) — \$47

Direct Cable — \$19.95 ■ VGA Cable — \$N.A.

NiMH Battery Pack — \$29 ■ Battery Quick Charger — \$89 (Battery included) ■ AC Adapter — \$34.95 ■ Modem Cable — \$19.95 ■ Stylus Pak (3-pens) — \$6.95

■ Carrying Case — \$39.95

CONTACT your local NEC dealer or NEC Phone: 888-8NEC-NOW; Website: www.neccomputers.com/products/mobilepro.

Novatel



Novatel CONTACT Handheld PC — under \$1,000 (With Windows CE 2.0 and built-in wireless/landline modem).

The Novatel CONTACT is a Windows CE 2.0 handheld PC for mobile users depending on wireless and landline communications. It comes with an integrated 19.2 Kbps wireless modem and a 14.4 Kbps landline modem. CONTACT provides users with the standard Windows CE 2.0 features along with the ability to send and receive email, browse the Internet, or access their corporate Intranet. With the exception of cables and adapters, all neces-

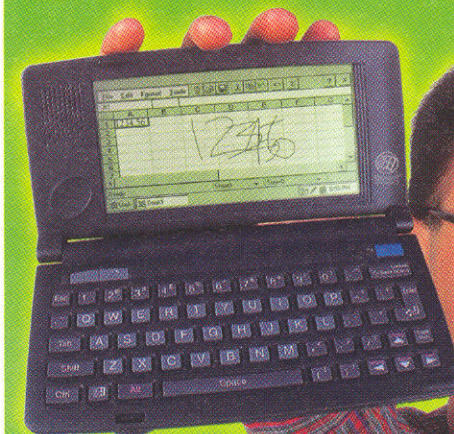
sary hardware and software is built into the CONTACT.

CONTACT will come with 4 Mb of internal RAM (expandable to 32 MB), 8 Mb of ROM also expandable to 32 MB, a 640 by 240 pixel backlit touch screen display, NiMH main batteries that recharges in CONTACT when it is connected to its external AC adapter. CONTACT comes with a wide-spaced keyboard, built-in voice memo capability, and a built-in VGA port allowing users to easily connect to an external 640 x 480 VGA output.

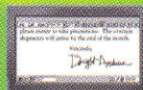
CONTACT users will need to subscribe to a cellular telephone service with Cellular Digital Packet Data (CDPD) capability. CDPD technology takes advantage of existing U.S. Cellular telephone networks to provide a cost-efficient method of wireless communication. Users are charged by service providers on a per-message basis or flat fee for unlimited usage. CDPD services are available in the U.S. through AT&T, Bell Atlantic Mobile, GTE Wireless, GoAmerica, and other leading service carriers.

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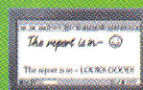
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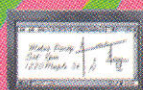
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Tentative Accessories List:

(All items that are included in the original packaging can be purchased as accessories as well.)

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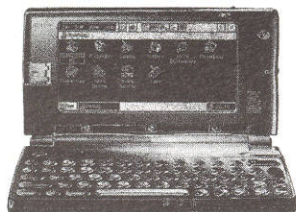
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Extra Manuals and other literature

Extra 3rd Party Software Vendors CD-ROM

CONTACT Novatel Wireless at 888-888-9231, fax: 403-295-4888; Website: www.novatelwireless.com

Philips



Philips Velo 500 with 16 Mb RAM — \$639
(Windows CE 2.0 and a 28.8 internal modem)

Philips Velo 500 with 24MB RAM — \$749
(Windows CE 2.0 and a 28.8 internal modem)

The Philips Velo 500 Handheld PC running the Windows CE 2.0 operating system. The Velo 500 comes with a 75 MHz MIPS processor, 16MB or 24MB of internal RAM (expandable to 40 Mb or 48 Mb with an optional 32 Mb DRAM Miniature Card), a built-in low power 28.8 Kbps modem with 9600 Kbps fax, 1 DRAM Miniature Card slot, 1 Flash/ROM Miniature Card slot, and an enhanced LCD screen capable of either 480x240 or 640x240 pixel display and 16 levels of grayscale. All Velos include built-in fax/modem, Velo Voice Memo system, two Intel-based Miniature Card expansion slots, phone jack, phone cord, rechargeable NiMH battery pack, and docking station with AC Adapter.

Other Philips H/PCs

Velo 1 (4 Mb RAM) — \$599.99 (NOT AVAILABLE) Windows CE 1.0 and 19.2 Kbps internal modem, no rechargeable battery pack.

Velo 1 (4 Mb RAM) — \$399.99 Windows CE 1.0, 19.2 Kbps low power internal mode, rechargeable battery

Velo 1 (8 Mb RAM) — \$839.99 Windows CE 1.0, 19.2 Kbps low power internal modem; sold exclusively online at Velo Store www.velo1.com

Windows CE 2.0 upgrade program

Velo 1 upgrade to Windows CE 2.0 - free with purchases of a Velo 1 between Sep. 2 and Dec. 31 1997. Outside those dates — \$99.99.

Velo accessories available:

2 Mb DRAM Card - \$ 99.99 ■ 4 Mb DRAM Card - \$179.99

2 Mb Flash Miniature Card- \$119.99 ■ 4 Mb Flash

Miniature Card- \$199.99 ■ Velo Docking Station - \$79.99

Velo Type II PC Card V-Module - \$99.99 Velo-to-PC Serial

Cable- \$39.99 ■ NiMH Rechargeable Battery Pack- \$39.99

Traveling AC Adapter - \$39.99 ■ Carrying Case - \$49.99.

U.S. retail outlets include: CDW, CompUSA Direct, Mobile Planet, PC Connect, and PC Zone.

CONTACT Philips Mobile Computing Group; Phone: 888-FOR-VELO; 408-558-2200; Fax: 408-558-2222; Web site: www.velo1.com.

Sharp



Sharp Mobilon HC-4500 — \$999

Windows CE 2.0, 16 Mb RAM, color LCD touch screen, rechargeable NiMH battery back.

Sharp Mobilon HC-4000/4100—\$600-900 (est.)

Windows CE 2.0, 4 Mb/8 Mb RAM, grayscale touch screen.

Sharp's Mobilon handheld PCs come in three models. The HC-4000 and 4100 will have a 16-gray scale monochrome LCD touch screen and the HC-4500 a 256 color LCD touch screen. The monochrome versions of the

Mobilon will have either 4 or 8 Mb of internal RAM and the color Mobilon comes with 8 Mb RAM. The only other difference is that the 4500 comes with a rechargeable NiMH battery pack and the 4000/4100 use AA alkalines. However, 4000/4100 users can purchase the rechargeable battery pack as an option. Battery pack recharges in the Mobilon when connected to the AC adapter.

Common Features

All Mobilons will use the 73.7 Mhz MIPS processor, and come with upgradeable ROM. The three models come with a built-in 33.6Kbps data/9.6Kbps fax lower power modem. In addition, they each have one Type II PC Card slot, a serial port and an IrDA 1.1 compliant 115.2Kbps infrared port. Mobilon comes with a 64-key keyboard + 7 one-touch application keys to quickly switch between the most used programs. Mobilon comes with LED indicators that notify you of Calendar and Task reminders, World Clock daily alarms, when it's time to charge the batteries, when your modem is connected, and when you are recording a voice memo. All Mobilons are WAV file compatible, which means you can record voice messages with the built-in microphone, and play it back with the built-in speaker, and there is an external record button. Mobilon comes with the following accessories included: AC Adapter, CR2032 Lithium backup battery, a PC Link serial cable, an RJ-11 modular phone cable, and a stylus. The 4500 comes with a NiMH rechargeable battery pack as a standard feature.

Additional software included with the Mobilon:

- bFax Express to send faxes from the Mobilon.
- Voice Recorder to record voice memos on the Mobilon.
- Image Editor to view and edit graphics on the Mobilon.
- Sharp Zaurus Data Transfer to transfer data between the Mobilon and a Sharp Zaurus via infrared ports.
- Microsoft Windows CE Services installs on PC and transfers/synchronizes data between Mobilon and Office 95/97.
- IntelliMigrate installs on PC and transfers data between Sharp Zaurus/Wizard/Electronic Organizers to the Mobilon, ZR, OZ, YO-600 series and ZQ-5000/5200 models.
- Microsoft Schedule+ 7.0a is a desktop PC scheduler.

Mobilon Accessories available

Docking Station Kit—\$150 (approx.)
Includes docking station, NiMH rechargeable battery pack, AC adapter.

NiMH Rechargeable Battery Pack — \$60 (approx.)
Can be used with the 4000/4100/4500.

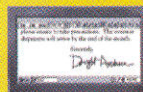
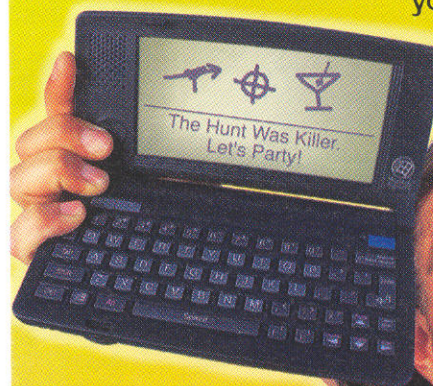
Digital Camera Card — \$400 (approx.)
Slips into the Mobilon's PC Card slot and turn your Mobilon into a color digital camera.

CONTACT your local Sharp dealer or Sharp Electronics Corporation; Phone: 800-BE-SHARP; Fax on demand: 630-397-8601; Web site: www.sharp-usa.com.

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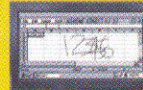
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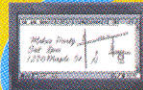
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ActionTec	714-851-8242; Fax: 714-851-8249	46	MicroBurst	301-330-2995 or 301-330-8609	60
ACTISYS	888-860-9880 or 510-490-8024; Fax: 510-623-7268	7, 50	MobilePlanet	800-675-2638 or 818-888-9348; Fax: 818-888-3484	41
ARDIS	800-494-1732 or 847-913-4685; Fax: 841-913-4700	Inside Back	Mobilesort	408-481-1900	36, 37
ART, Inc	818-678-3999; Fax: 818-678-3990	67, 69, 71	MVA Software	714-970-9147; Fax: 714-692-9189	15
Baker Products	800-444-1025 or 212-554-4521; Fax: 212-554-4248	54	ParaGraph	800-810-0055	66
CIC	800-888-8242 or 415-802-7735; Fax: 415-802-7777	3	PDA Direct	800-279-4732 or 219-882-5228; Fax: 219-845-0578	Inside Front
Cross Pen	800-510-9660	1	PDA Inc.	415-252-8008; Fax: 415-252-8055	43
DataViz	203-268-0030 X3037; Fax: 203-268-4345	34	Pretec Electronics	510-440-0535; Fax: 510-440-0534	7
DTS Wireless	888-243-8387	33	Priority Focus	800-438-5512 or 619-697-9566; Fax: 619-697-2804	35
EduCALC	800-713-6526 or 714-582-2637; Fax: 714-582-1445	55	Pygmy	305-253-1212; Fax: 305-255-1876	26
EXP	800-397-6922 or 714-453-1020; Fax: 1319	Back Cover	River Run Software	203-861-0090; Fax: 203-861-0096	5
Green Mountain Software	802-865-2728; Fax: 802-865-2468	58	Rupp Technology	800-852-7877 or 212-517-7775; Fax: 602-941-5505	16
Greenwich Instruments	800-476-4070 or 704-875-8490; Fax: 2801	50	Shier Systems	805-371-9391; Fax: 805-371-9454	60
Ilium Software	888-632-5388 or 313-973-9388; Fax: 313-207-9358	17, 70	Syware Inc	617-497-1300; Fax: 617-497-8729	32
Imagineering Inc	801-233-8325 or 801-256-9359	9	Thaddeus Computing	800-373-6114 or 515-472-6330; Fax: 1879	8, 58, 63, 65
Kingmax Micro	714-454-9888; Fax: 714-454-9499	11	Vancesoft	888-826-2372 or 626-445-8932	17
LandWare Inc	800-526-3977 or 201-261-7944; Fax: 201-261-7949	31			

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PowerCD Handheld PC Magazine January/February 1998

Windows CE shareware and freeware mentioned in this issue and available on our PowerCD supplemental CD ROM and at our website: www.thaddeus.com.

Program	Description (shareware/freeware status)	Page No.
Bookworm	Vertical Reader for text files (trial)	32, 44
Boomeran	Professional Communications (shareware)	32
Comet Defense!	Arcade style game (trial)	30
CoolCalc	Calculator (freeware, beta)	38
Database Backup Utility	Backup Databases (shareware)	32
Drop 4	Connect 4 game (trial)	30
eWallet	Store personal info (trial)	30
Game Break	Kings Corner (10 day trial)	30
Gutenberg Etexts	Books - see below (freeware)	46
InScribe	Special Input (trial)	49
Pocket CW	Crosswords on your H/PC (trial)	30
Verdana True Type Font	True Type Font (freeware)	52

Project Gutenberg Etexts on this issue's Power CD

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notun10.txt - Notes from the Underground
emcty10.txt - The Emerald City of Oz
lwmen10.txt - Little Women
bbet10.txt - Beauty and the Beast
bhoti01.txt - A Brief History of the Internet
dracu10.txt - Dracula
lostc10.txt - Lost Continent
rubai10.txt - The Rubaiyat of Omar Khayam

sonsa10.txt -- Sons and Lovers
arabn11.txt -- The Arabian Nights
dgray10.txt - The Picture of Dorian Gray
fuman10.txt - The Insidious Dr. Fu Manchu
rholm10.txt - The Return of Sherlock Holmes
tarz610.txt - Jungle Tales of Tarzan
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